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Worship of the Deities *Olā*, *Jholā* and *Bōn Bibī* in Lower Bengal.

By SUNDER LAL HORA.

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During January-February, 1933, I was carrying out certain investigations on the brackish water fauna in the neighbourhood of Calcutta. In the course of this work, a visit was paid to Tolly's Nullah near Gangājaorā and to the southern portion of the Salt Lakes near Naoabād on the 2nd of February. On my way back, a small hut built of stakes and leaves of Pakhurgachh was noticed in a lonely place in the paddy-field adjoining the village of Gangājaorā. The hut had been built in a small area, specially cleared for the purpose. On closer inspection, it was found that a low mud-platform resembling a Muhammadan tomb or *dargah* (plate 1, fig. 2) had been constructed, and that a portion of it was covered by the hut. On the shaded portion of the platform were the images of the two¹ sister deities *Olā* and *Jholā* (*vide infra*) in a standing posture and mounted on a piece of wood (plate 1, fig. 1). On the platform and in its immediate vicinity were found scattered about *chirāghs* or small earthen lamps and empty shells of cocoanuts, showing thereby that some sort of *pūjā* had been performed here not very long ago.

The two sister deities were represented by beautiful clay figures and were dressed in fine and gorgeously coloured clothes. The palms of their hands had been painted deep-red. The right arm in both the figures was stretched outwards and the forearm bent upwards² exactly in the same way as a policeman holds his arm to stop traffic coming from in front of him. The position of the other arm is different in the two figures as can be seen in the illustration.

When we were studying the hut and its inmates, several shepherd boys and villagers joined us. We were thus fortunate to obtain the following account of the worship.

The worship of the deities *Olā*, *Jholā* and *Bōn Bibī*³ is performed on a day convenient to the whole village in the Hindu month of *Māgh* (January-February). *Olā* and *Jholā* are believed

¹ Dr. S. K. Chatterji thinks that both *Olā* and *Jholā* refer to the goddess of cholera (*vide infra*, p. 4).

² This position of the forearm and the hand indicates that the goddesses are bestowing benediction on the people who worship them.

³ I was informed that in places where Hindus and Muhammadans jointly worship this goddess, it is called *Bibī Mān*, and the worship is performed by a Muhammadan priest.

to be two sisters, the former presides over the disease of cholera and the latter over that of smallpox. The two godlings are worshipped to secure immunity for the entire village from these fell diseases.¹ *Bōn Bibī* (literally means the goddess of the jungles) is worshipped to secure safety from all kinds of wild beasts and other mishaps while moving about in the jungles.² It has been indicated above that there were only two images (commonly called *thākúrs*) when we visited the place. We learnt that there were several others, but they must have been destroyed or removed by boys playing about in the neighbourhood of the place. It would thus appear that the sanctity of the place is observed only on the day of worship.

The *pūjā* is a common affair for the entire village and as such it is performed by purchasing the necessary articles from a fund to which every villager subscribes according to his or her means and position in life. The principal item in the *pūjā* is the sacrifice of a goat. The animal is 'cleaned' by washing, is garlanded and then decorated by placing a vermilion mark on its forehead. Thus adorned, it is brought in the presence of the deities and fed with rice and other articles. After the customary incantation of the *mantrās* by the Brahman priest, which had been going on since the time the goat was taken in hand for washing, the animal is beheaded; the head is taken away, as his fee, by the village blacksmith who usually is the person who actually kills the animal and the meat is distributed to all the villagers. Offerings of flowers and fruits are made to the deities and these are collected afterwards by the priest. *Terra-cotta* lamps are burnt at the time of *pūjā* which is held about midday. At night a much larger number of small earthen lamps are lighted.

I was informed that the small plot of land, on which *pūjā* is performed year after year, has been made over to the village in perpetuity for this purpose by some rich person of the village. Such pious acts are not uncommon among the Hindus all over India.

The village of Gangājaorā in the 24-Parganās is mostly inhabited by the Hindus of the Pod (Padmarāj or Chāsi) caste. It is a 'fishing, cultivating, landholding and trading caste of Lower Bengal, found in large numbers in the 24-Parganās'

¹ It may be noted that in Lower Bengal 'cholera has a tendency to become epidemic twice a year, viz., at the beginning of hot weather, and at the end of rains.....Smallpox occurs on a small scale every succeeding spring.'—(O'Malley, 1914, p. 89.)

² It has to be remembered that this part of Lower Bengal was included in the Sundarbans not very long ago and was infested with dangerous animals. The jungle and its attendant dangers have disappeared now, but the popular belief of worshipping *Bōn Bibī* still lingers. Superstitions and popular beliefs, like geological and archæological records, form an important basis for the study of the spread of human culture and civilization.

(Risley, 1891, p. 176). The social status of Pods is low and they always employ as their priests members of certain families from among Rāphī Brahmans. Those Brahmans, who act as their priests, are held to be so far degraded by serving them that high class Brahmans will not take food or water from their hands.

The above note was given to Dr. Suniti Kumar Chatterji for criticism and suggestions, and some of his views, for which I am grateful to him, are given below. I take this opportunity to express my thanks to Babu D. N. Bagechi, who accompanied me in the field and took the photographs reproduced here.

The village deity whose worship has been noted by Dr. Hora is fairly common in Deltaic Bengal, at least in the central and western parts of it, and is known probably also in other parts of the province. Any destructive or beneficial force is recognized as a deity. New forces of one kind or another are acknowledged as soon as they arrive. Smallpox became recognized long ago under diverse names as *Hārītī* and *Sūtalā*, *Mātā* and *Mariyamnā*. Cholera as an epidemic disease is perhaps recent in India—at least it seems to have been not so prominent in ancient times. In any case we do not have its virulent spread registered in the ancient Hindu pantheon in the form of a god or a goddess of a destructive force. Cholera seems to have come into prominence in the Bengal delta, if not actually into existence, as an epidemic, only a little over a hundred years ago.¹ I have heard the late Mr. Amrit Lal Bose, the distinguished Bengali author and dramatist, who died at an advanced age in 1929, say that *Olāi Caṇḍī* came into sudden popularity since that time. *Olā-ūthā* is the Bengali name for cholera (from *Olā*, an obsolete verb meaning “to come down”, and *ūthā* “to rise, to come up”, referring to the nature of the disease). The Sanskrit word *Viśūcikā* is not used colloquially. *Olā-ūthā* or cholera as a death-bringing force was looked upon as the form of the goddess of destruction—of *Caṇḍī*, the “terrible” or the “irate” one, who is but the same as *Durgā* or *Umā*, or *Śakti*: the goddess presiding over it was called *Olāi Caṇḍī*, the *Caṇḍī* of the *Olā-ūthā* disease. *Olāi Caṇḍī* is now worshipped by the Hindus in Southern Bengal with the usual Hindu rite of *pūjā* conducted by Brahman priests; and she also receives the homage of the Muhammadans. As a concession to the susceptibilities of Muhammadans, who would

¹ Cholera appears to have been known in India from the most ancient times, for Charaka and Susruta describe symptoms which most probably refer to this disease (Castellani and Chalmers, 1913, p. 1343). The earliest record of cholera as an epidemic in India is found in 1438 when Ahmed Shah's army is said to have been decimated by the ravages of this disease. In Bengal, however, it began as an epidemic, which may have originated in Calcutta or Jessore in 1817 and which lasted till 1823. S. L. H.

not like to be found worshipping a deity with a frankly Hindu name, *Olāi C'aṇḍī* is also called *Olā Bibī*—the use of the Persian expression *Bibī* "Lady" at once sort of Islamises her, and she becomes a female counterpart of many *Pīrs* or godlings of popular Islam, only she is far more dreaded than any *Pīr*. The goddess is now indifferently known as *Olāi C'aṇḍī* or *Olā Bibī*, the Muhammadans preferring the latter name. The name *Olā-jholā* as noted by Dr. Hora must be a local variation. *Olā-jholā* may be explained as meaning the same thing as *Olā-uthā* (*jholā* from *jhol* "watery mass or mess, soup"), the jingle pleasing local fancy. A shrine to this goddess is not an infrequent thing in the villages round Calcutta. In the suburb of Belgāchiya to the north of Calcutta there is a very popular *Olāi C'aṇḍī* shrine, where the proprietors are Hindus; in Nebutalā off Bowbazar Street in the heart of the city, there is another *Olāi C'aṇḍī* shrine: and in the village of Kāsundiya within Howrah Municipality there is an *Olā-Bibī-talā Lane* on which stands an *Olā Bibī* temple owned by Muhammadans.'

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FIG. 1. Images of the two sister deities, *Olū* and *Jholū*

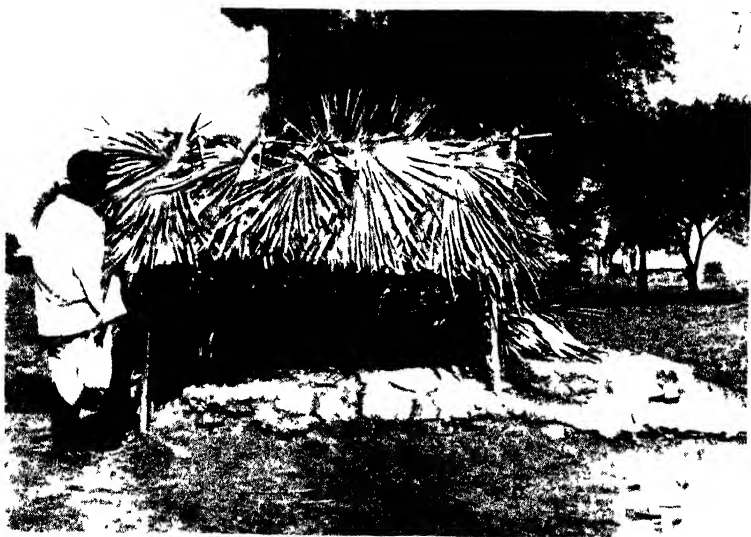


FIG. 2. Hut used for the worship of the deities *Olū*, *Jholū* and *Bōn Bibi* at Gangājaorā.

Sedentary Games of India.

By SUNDER LAL HORA.

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In a series of articles that I propose to contribute to this Journal from time to time, I shall be describing the various types of sedentary games that are still prevalent in different parts of India. It seems to me that, in the first instance, the importance of the comparative study of such games, from the ethnological standpoint, does not lie so much in the details of their similarities and differences as in the light it throws on social contact between different groups of people. Cultural traits may migrate in various ways, and these migrations may be due either to actual movements of people or, as so often happens, to contact. The tracing of the possible routes of migrations of these games, as in all other single traits, furnishes important clues regarding the general contact—metamorphism of different people or the displacement of one by the other. Whichever may be the basic reason in a particular locality or among particular tribes, it provides important clues and evidence which are of considerable value to the historical study of their culture.

Before discussing the wider question of the cultural significance of the various games now being played in India, it seems desirable to record all the different types that are prevalent at the present time and to study the variations undergone by them during their distribution from place to place in this country. In recent years, the late Professor H. C. Das-Gupta directed our attention to the wealth of information that is still available on this subject in India in a number of articles, seven of which he published in our Journal. The present generation of educated people is almost ignorant of these local games, while the illiterate masses are also taking more and more interest in imported games for their amusement. The old games are thus dying out, and it is important to record the things which another generation may rarely, if ever, see. My present residence in the cosmopolitan town of Calcutta enables me to study the games played by people of the different provinces, and, moreover, the exigencies of my service in the Zoological Survey of India permit me to visit widely separated, and sometimes almost inaccessible, localities. Further, I am indebted to correspondents all over India who very kindly supply me information about these games.

To understand the rules of the games, some of which are fairly complicated, I have played them with the informants. In some cases the results have been verified by playing the same games with other people from the same locality or by sending out full descriptions to friends to check the statements.

In the study of these games I have received great help from my friend and colleague Dr. B. S. Guha, and I take this opportunity to express to him my sincerest thanks.

I. SEDENTARY GAMES PLAYED IN THE TEESTA VALLEY BELOW DARJEELING.

While on a zoological tour to the Teesta Valley in April, 1933, attempt was made to collect a few types of sedentary games played in the valley. During my stay for a couple of days at Kalijhora, an old man was engaged as a cooly to help me in the collection of zoological material. This man, though of Nepalese origin, had been born and brought up in the Teesta Valley. The following three games were explained to me by this old man, and in this he was assisted by the watchman of the P.W.D. Rest House. On my return to Calcutta an account of these games was prepared and sent to my friend Mr. F. D. Raj at Kalimpong, who, after making enquiries among the coolies, informed me that the account given was correct. I am grateful to Mr. Raj for the help thus rendered.

Lam Turki.

Description.—The game is played by one person, so it is a kind of a 'Solitaire', but usually a group of people sit together and play the game in turn. It is played on a board of ten crosspoints ($a-j$) arranged as in the accompanying diagram. There are nine pieces of any hard substance with which the game is played. The actual play consists of two phases. In the first phase, the person playing has to get all his nine pieces on the board, and then in the second phase, by the usual method of jumping over, has to capture all except one. The pieces can be placed on the board in any way, except that when a piece is placed on a crosspoint it has not to be shifted from its place. When removing the pieces from the board, they are taken as in draughts by leaping over the piece to be captured to a vacant space in the same straight line.

It is rather a difficult game, so the old man gave me the following directions for playing it correctly. While placing the pieces on the board, start should be made from any corner point and a piece deposited on the second crosspoint away from it in a straight line. For instance, if the start is made from *e*, then the first piece should be placed at *b*. In the next move, start is made from such a point that after

counting three points, as indicated above, the piece is placed at *e*, the starting point for the first move. In every

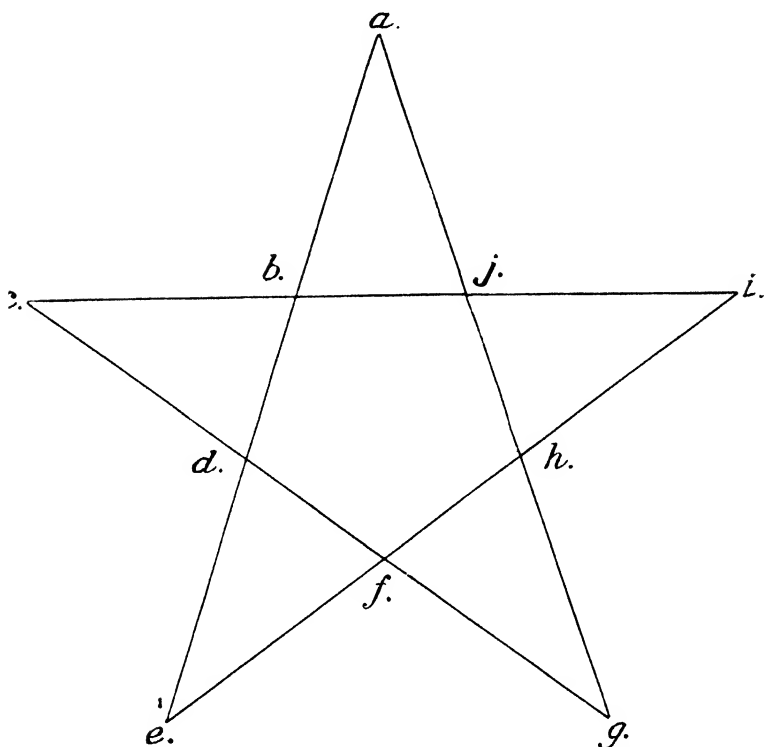


FIG. 1. -The board used in playing the game *Lam Turki*.

move the point from where the start is made for the preceding move is filled up. In nine moves all the pieces are thus placed on the board. These moves may be as follows :—

e d b, h f e, a j h, d b a, g f d, j h g, c b j, f d c, i h f

In each move the crosspoint represented by an underlined letter is occupied, and it may be noticed that each such point formed the starting point of the previous move. After the nine moves indicated above, one crosspoint *i* remains vacant. In removing the pieces from the board, effort should be made to avoid going to the extreme corners. For removing the pieces, the following moves may be made :—

f h i, c d f, a b d, i j b, e f h, g h j, j b c, c d f

In the above-noted eight moves, the pieces lying on the crosspoints represented by the underlined letters will be removed one by one, so that in the end only one piece remains on the board at the crosspoint *f*. It may be noted that in these eight moves, there are six in which the pieces from the extreme corners are moved inwards.

The moves can be varied, but for the correct play the principles enunciated above should be observed, otherwise more than one piece remain on the board and the person playing the game loses it.

Remarks.—Humphries¹ described a similar game from the Karwi Subdivision in the United Provinces under the name *Kouwa Dand* but remarked that ‘I had great difficulty in learning the rules of this game, as the man who gave me the diagram had forgotten them, and the *patwari*, the only man in the village who knew the game at all, had not played it for years’. In the Teesta Valley, I was informed that the game is played only by a few intelligent people, and is by no means commonly understood.

I was informed that the vernacular name of the game *Lam Turki* literally means ‘going straight’, in which probably reference is made to the characteristic straight moves that are made in playing this game.

Attention may here be directed to *Kaooa*, a type of sedentary games prevalent in the Central Provinces and described by Das-Gupta². The diagram used for playing this game is identical with that of *Lam Turki* and *Kouwa Dand*. *Kaooa* is, however, a peculiar kind of tiger-play which is played by two persons, one in charge of seven *kaooas* and the other in charge of one ‘tiger’. It will thus be seen that though the figures used in all these games are absolutely identical, there is a great deal of difference in the actual playing of the games.

Bhagchal, Bhagchakar, or Chakrachal.

Description.—This is a kind of tiger-play in which two persons are required to play the game, one plays with four ‘tigers’ and the other with twenty ‘goats’. The diagram is given on the opposite page.

The four ‘tigers’ are placed at the four points A B C D, and then one by one the ‘goats’ are brought on the board. As soon as the first ‘goat’ is placed on the board, one of the ‘tigers’ moves to capture it. This can only happen when the ‘goat’ is between the ‘tiger’ and a vacant point in a straight line. The ‘goats’ are captured as in draughts by jumping over. No ‘goat’ is to be moved from its place on the board

¹ Humphries, *Journ. As. Soc. Bengal* (N.S.) II, p. 126 (1906).

² Das-Gupta, *Journ. As. Soc. Bengal* (N.S.) XX, p. 167, 1924 (1925).

till all the 20 'goats' have been placed on the board one by one. Then the pieces can be moved forwards and backwards on adjacent vacant places. The effort of the player holding the 'goats' is to checkmate the movements of the 'tigers'. When either all the 'goats' are captured or all the 'tigers' are

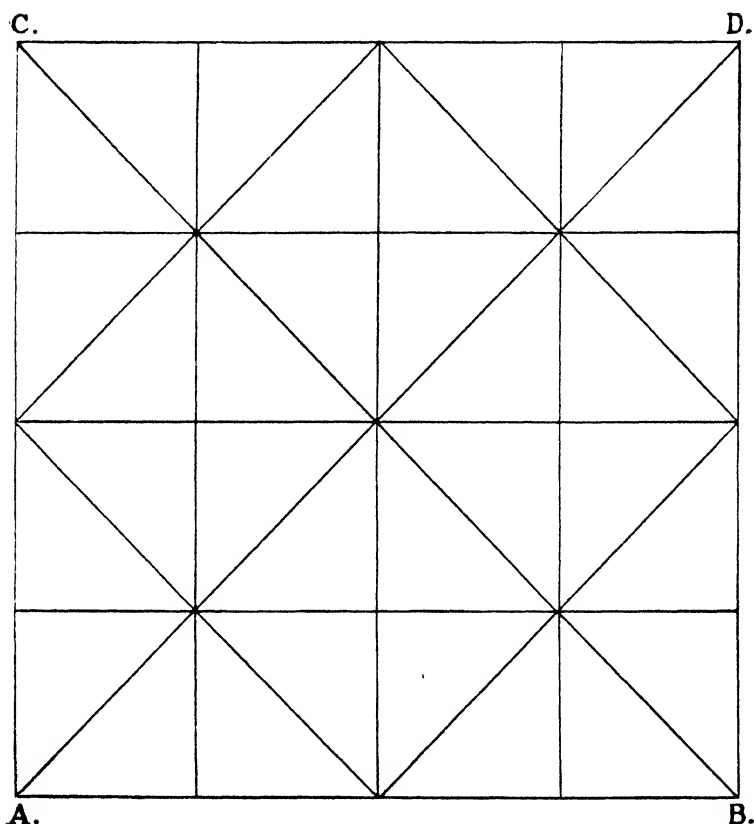


FIG. 2.--The board used in playing the game *Bhagchal*, *Bhagchakar* or *Chakrachal*.

checkmated, the play is finished. The person who performs one or the other of the two feats is the winner.

Remarks.—In India there are several types of tiger-play in which the number of 'goats' may be 24, 20, 12 or 3, while the number of 'tiger' may be 1, 2, or 4. Though the underlying principle is the same in all these games, in actual practice the methods for playing each game are different. The essential features of the game from the Teesta Valley are: (i) the four 'tigers' are placed at the commencement of the game at the extreme four corners and the 'goats' are brought on the board

one by one, (ii) once placed, no 'goat' is to be moved from its position till all the 'goats' have been placed on the board. For a brief account of certain variations of the game of this type, reference may be made to Das-Gupta's description of the two types of tiger-play from Orissa.¹

In the local names *Bhagchal* and *Bhagchakar* reference is made to the movements of the 'tiger', while in *Chakrachal* the movements of the pieces in all directions, backwards, forwards, and sideways but always in a straight line, are indicated.

Lam Pusri or Sipahi Kat.

Another game played in the Teesta Valley is the *Lam Pusri*. It is played by two people on a board of 37 points, each player has 18 distinctive 'men' which are arranged in such a way

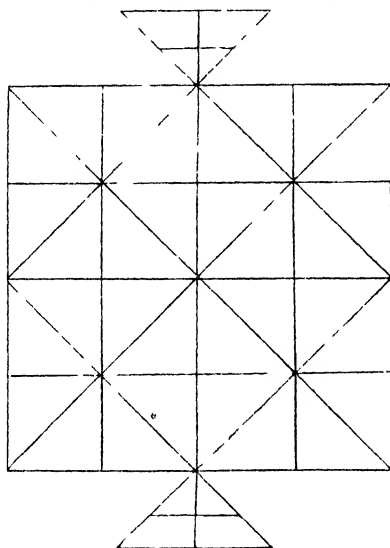


FIG. 3.—The board used in playing the game *Lam Pusri* or *Sipahi Kat*.

that the central crosspoint is left vacant. This game is identical in every respect to *Ahtarah Gutti* described by Humphries² from the Karwi Subdivision of the United Provinces and to *Atharagutiala teora* described by Das-Gupta³ from the Central Provinces. Both of these authors have given rules for playing the game so I refrain from giving further particulars about it here. The diagram used in playing the game is given above.

¹ Das-Gupta, *Journ. As. Soc. Bengal* (N.S.) XXII, pp. 212, 213, 1926 (1927).

² Humphries, *ibid.*, (N.S.) II, pp. 121, 122, fig. 3 (1906).

³ Das-Gupta, *ibid.*, (N.S.) XX, p. 165, 1924 (1925).

I was informed that *Pusri* means tail, and by using this term in the name of the game reference is made to the triangular pieces at two ends of the diagrams which are likened to tail as they form outgrowths of the big central section of the diagram.

There is yet another game played in the Teesta Valley about which I could not obtain full particulars from the old man, nor Mr. F. D. Raj has been able to find out the rules about playing it. The diagram used in playing this game is similar to that used for *Gol-ekuish*¹ which consists of seven concentric

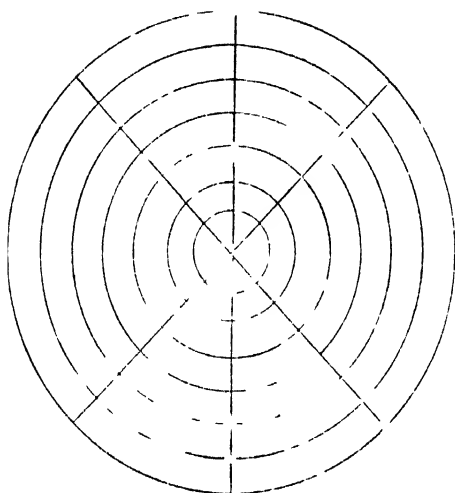


FIG. 4.— The board used in playing the game *Gol-ekuish* of the Central Provinces.

circles divided by three diameters, thus there are 42 points in which the diameters meet the circles. Two players are required to play the game, one has a large number of 'goats' (unfortunately the number could not be ascertained) and the other plays with only one 'tiger'. The usual rules of the tiger-play are observed, but the movement can be in all directions and not only along straight lines. In *Gol-ekuish*, each player has 21 ballets which are placed at 21 crosspoints arranged along three consecutive radii. It will thus be seen that on a similar board totally different types of games can be played. This has also been noticed above in the case of *Lam Turki* and *Kaooa* games.

¹ Das-Gupta, *ibid.*, (N.S.) XX, pp. 166, 167, fig. 3, 1924 (1925).

A New Indian Version of the Story of Solomon's Judgment.

By CHINTAHARAN CHAKRAVARTI.

Quite a good number of stories similar to the story of Solomon's judgment as told in the Bible¹ are known in different parts of the world.² These stories differ, of course, in the matter of details, but the *motif* of ingenuity in the matter of deciding a crucial point is the same in all. In India different versions of the story have been known to exist among the various religious sects. Four versions of the story have been traced in the literature—Sanskrit and vernacular—of the Jains.³ One version belonging to the Buddhists was translated by Prof. Rhys Davids in his *Buddhist Birth Stories*.⁴

I have recently come across a new version of the story in a Tantric work entitled *Guruparamparācaritra*,⁵ a work which describes legends connected with the lives of several saints who followed the Tantra form of worship. The story in question occurs in Chapter XXIX of the second half (*uttarārdha*) of the work. It is a comparatively recent work having been composed as late as the year 1872 A.D. by one Rāmākṣṣa. It is not known definitely whether, as would seem very likely, our author had any traditional old story to go back upon or whether he only modified the versions of the story as found among the Buddhists and Jains and introduced novel elements. The matter must be left to students of comparative folklore for decision. It will be noticed, however, that this version shows some noticeable points of difference from the usual type of the story. The quarrel turns not on the ownership of the child but on the identity of its murderer. Further, the test suggested by the prince for the solution of the problem is a novel one and does not agree with the tests found in other versions. I now propose to give a summary of the story for what it is worth. It runs thus :—

¹ I. Kings, iii. 16-28.

² *Buddhist Birth Stories*, Vol. I, Rhys Davids, London, 1880, pp. xlv ff.

³ These were collected and translated by L. P. Tassitorty in the *Indian Antiquary*, 1913, pp. 148 ff. It is to be noted that Frazer in his monumental work, *Folk-lore in the Old Testament* (Vol. II, pp. 570-1), has only referred to these four Jain versions. It seems that he was not aware of the Buddhist version.

⁴ Vol. I, pp. xiv-xvi.

⁵ It has been published from the Venkateswar Steam Machine Press of Bombay.

‘A hermit wandering towards the north went to a big city where Dharmasimha, the good and pious king, ruled. He had a son seven years old.

In that city lived a wealthy Brahman who had two wives. He was childless ; but in course of time had a son by his younger wife. The elder wife was very good-natured and looked after the step-child as if it were her own. As a matter of fact, all outside people thought it to be hers ; only a few who were intimately related to the family were aware of the actual relation. The husband was naturally pleased with the elder wife on account of her kind behaviour. The younger wife was jealous of the affection shown to the childless co-wife ; and one night administered poison to the child, placed it by the side of the co-wife, and went to bed herself. When she got up in the morning she touched the child to make sure that it was dead and then cried out. The elder wife was wakened by the screams and, finding the child lifeless, was so shocked that she could utter no words.

The husband and all other people shortly came upon the scene. Seeing the husband the younger wife said with false tears in her eyes, “Confidently did I place the child beside my co-wife in the night. Now she must have killed it by poison. You love her, though childless, more than you love me. Not knowing her mind you have always been angry towards me. I shall now go along with this child. I shall keep no more company with her. You may live happily with her.”

Hearing all these words of the younger wife the people around had no suspicion in their minds and said, “It must be the work of the elder wife”.

Receiving report of the matter from a messenger the king summoned all concerned to his presence. The younger wife narrated the whole story to the king even before she was asked anything about it.

After hearing what she had to say the king had no doubt that she spoke the truth. For who else, thought he, could there be to kill the child. So he decided to punish the elder wife.

Now, the young prince approached at that time and said, “She who will proceed naked to the tank near by with a pitcher and, bringing water therefrom, pour it on the image of Śiva before all present, will be recognized as the truthful one and not the other”. The younger wife readily agreed to this vulgar proposal. At that the prince asked his father to consider who really was guilty. The king then detected his mistake and punished the younger wife.’

It may be of some interest to relate here how modern scientists have recently dealt with a similar problem—the problem of determining the parentage of two children quite identical in appearance. We quote in detail from the editorial notes of the

Calcutta daily the *Amrita Bazar Patrika* of the 8th August, 1930, where a case¹ has been described in some detail. The note runs :—‘Scientists have worked wonders in the past, but who ever thought that they might be called upon to solve a puzzle which the Chicago anthropologists are now trying to do ! The puzzle consists in establishing the identity of two three-weeks-old babies born in a Chicago hospital within a few hours of each other. The mothers had gone home with their babies ten days after they had been delivered and one of them, Mrs. William Watkins, discovered there that her baby had around its neck a piece of tape on which was written ‘Bamberger’. Rushed Mr. Watkins to the Bambergers and shouted, “You have got the wrong baby”. “Guess not” was the calm reply from Mr. Bamberger, for did not everybody say that the baby looked just like him ?

Then followed investigations and inquiries. The Bambergers’ nurse had removed, it was ascertained, from the person of the baby they had taken home a tape which bore the inscription “Watkins”. But this was to no effect, for the Bambergers would not be convinced of the fact that they had the wrong baby which everybody said looked so much like Mr. Bamberger. The hospital authorities having failed to solve the problem, the scientific experts are taking a hand to do so. Elaborate physical examinations of the fathers and the babies have been made. Skulls have been measured, pigmentations of eyes and skins have been tested, and hairs have been examined. They have compared their findings, and have stated to be hopeful of solving the riddle. We hope they will. In the meantime, the Chicago Health Commissioner had issued the fiat that maternity hospitals should take foot-prints of new-born babies to make identification infallible.’

¹ A similar case from Germany in which proceedings were started eleven years after the birth of the children was reported in another Calcutta daily, the *Advance*, of the 4th April, 1931.

Date of the Introduction of the Śaka Year in Java.

By HIMANSU BHUSAN SARKAR.

The most popular but fabulous early history of Java is contained in the following interesting account which sets up a sort of mythical chronology of the early kings of Java. In this list we come across the names of some heroes of the Lunar dynasty, which prove the influence of the great Indian epic among the peoples of Java. The name of the heroine of the *Rāmāyaṇa*, Devi Sinta, also occurs incidentally. The story proceeds with the account that before the creation of any human being in Java, the presiding deity of the country was Visnu who was followed by Tritresta, son of Jāla Prāsi and grandson of Brahma. He established his government at the foot of Gunung Semiru (Sanskrit Sumeru) with its capital as Giling Wesi. His sons were Manu Manasa and Manu Madeba. Two exquisitely beautiful damsels, viz. Sinta and Landap lived at his court and the description of their incomparable accomplishments allured Watu Gunung of Kling to declare a war against him, and he was slain. Thus Watu Gunung, the adventurous hero of Kling, became the overlord of Giling Wesi, which he ruled for 140 years. He was ultimately punished and killed by Viṣṇu in the year 240. The vacant throne, however, was occupied by Gutāka of Kling, a *protege* of Bhātara Guru, and he ruled for 50 years. In 290, he was succeeded by his son Raden Sawela, who, after a reign of 20 years, was succeeded by Gutama. He removed the capital from Giling Wesi to Astina, which was again given up for Lagrestina. Meanwhile, Raden Dasa Wiria, son of a Brahmana of Gunung Jali, established himself at the foot of the Lawu mountain in Java and his son Dasabāhu captured Astina in 310. He was, however, succeeded by his son Suantana, who began to rule the country wisely. In course of time, a son was born to him ; but the mother died in child-birth, which necessitated the discovery of a woman who could suckle the new-born baby. It happened that on one occasion Ambu Sari, wife of Pulasara, the grandson of Tritresta, was walking with her child, when she came across Suantana, who was seeking for a nurse-mother for the new-born baby. But Ambu Sari would not suckle him at all, unless the prince promised her the kingdom of Astina, which she wanted to hand over to Abiasa, when grown up. The prince complied with this bargain and accordingly Abiasa came to the throne in 415. Dewa Brata, son of Suantana, became the prince of Kumbina. Abiasa married in advanced

years and begot three children, of whom the eldest was the blind Drestarata. Of the other two, Pandu Dewa Nata was very handsome, though the youngest Rama Widara was lame. After a reign of 12 years, Abiasa transferred the sceptre to the hand of his able second son Pandu, who married Devi Kunti in course of time. By her, he begot three sons, viz. Kunta Deva, Sena, and Jināka—and by his second wife, Madrin, Nakula and Sadeba. As Pandu had died and his sons were minors, Drestarata was declared as the protector, who, instead of returning the kingdom to the sons of Pandu, really transferred it to his own son Suyudhana, who thus became the king of Astina. The sons of Pandu were asked to settle in Amerta, wherefrom they sent their cousin Kṛṣṇa to demand for the restitution of at least half of the kingdom; but the proposal found no favour in the quarter of Suyudhana and hence a war, the celebrated Brata Yudha, was declared against the sons of Drestarata in which Suyudhana fell fighting. Puntu Deva thus became king in 491, though two years later he gave up the royal sceptre to Parikisit, son of Abhimanyu, who was duly followed by his son Udayana. Then succeeded Jaya Derma and Jaya Misana, father and son respectively, to the throne of Astina. As pestilence now broke out, Jaya Misana's son, Jaya Purusa, removed the capital to Milava, where his descendants reigned till Bisura Campaka departed for Mendang Kamulan, where he lived as a pandit. The third king after him was Aji Jaya Baya, who became sovereign of this country and named it Purva C'rita. It is related of him that by orders of Bhatara Guru, he dictated the *Brata Yoedha* (= *Bhārata Yuddha*) in 701. He was followed by his son, Salapar Wāta, in 756. Jaya Langkara, his son, succeeded him to the throne and, before committing himself to the fire, divided the kingdom among his four sons. Subrāta, his first son, was installed over Janggala; the second son, Para Yara, got Kediri; Jāta Wida, the third one ruled over Singhasāri, while the youngest one, Suwida, got Ngarāwan.

We regard this legend as of some importance; because it contains some grains of facts which we can gather from tons of fiction. The most important information we derive from this mythical chronology is the reference of 701 as the date of composition of the celebrated *Bhārata Yuddha*. The Kawi-work itself clearly states—'Nowan don Puseda makirtia Sasakala risang'a Kuda Suddha Candrama—', i.e. the date 1079 (Saka year) was made *annus mirabilis* by the service of Mpu Sedah. The book was, therefore, composed in 1157 A.D., which is verified by the *Wawatekan* codifier and other writers as well. It proves thus that the year 1157 A.D. is equivalent to the unspecified Javanese year 701. Or, in other words, the Javanese year begins in 456 A.D. Let us now see if this year tallies with facts known from inscriptions and other sources. We take up one

historical figure from the above legend, viz. Udayana, who was in the throne in 575 of the unspecified Javanese era.¹ When this year is referred to 456 A.D., it will be equivalent to 1031 A.D. Now this Udayana was the consort of princess Mahendradattā of Java and their son Airlangga was born in 991 A.D. He did not rule in Java, but in the island of Bali his last known record has been known to bear the date at 1022 A.D. He was a ruling prince of that island.² The small difference between 1022–1031 A.D. rather strengthens than militates against our theory.

Let us now take up another figure from the above list, viz. Puntu Deva. In Java he is well known as Dharmmavaṃśa. The date standing against his name (491), when referred to 456 A.D., would correspond to 947 A.D. Thus Puntu Deva-Dharmmavaṃśa was ruling in 947 A.D. This is the last known date of King Siṇḍok, who ruled in East Java. We find one Dharmmavaṃśa-Anantavikrama ruling in East Java towards the close of the 10th century A.D. It appears that the period between 947–991 A.D. was a very troublesome one. As a matter of fact, in the Post-Siṇḍok and Pre-Dharmmavaṃśa-Anantavikrama period, we find only one male ruler. It is possible that Puntu Deva-Dharmmavaṃśa carved out a small state from the kingdom of Siṇḍok during this period. If he be a predecessor of Dharmmavaṃśa-Anantavikrama, the marriage of Airlangga and the daughter of D. Anantavikrama marks the consummation of two rival dynasties.

Let us take up another figure from the list of Raffles,³ viz. Kusuma Vicitra. The unspecified Javanese era standing against his name, when referred to 456 A.D., would make the year correspond to 1094 A.D. According to the Balinese tradition,⁴ he is identical with Rāja Kusuma. Prof. Kern⁵ doubted the tradition on the ground that only the word *Kusuma* is identical with both. We know, however, from a *Wavatekan*-reference that Yogīśvara composed the Old-Javanese *Rāmāyaṇa* in 1094 A.D. Balinese tradition also makes Rāja Kusuma or Kusuma Vicitra as the author of the *Kakawin*. As all relevant informations verge on the year 1094 A.D., we can accept all these three names as identical. It incidentally fixes the date of the Old-Javanese *Rāmāyaṇa*, on which opinions of scholars are still sharply divided. It is also noteworthy that R. ng. Dr. Poerbatjaraka, after investigating the historical data in Cantos 38 and 39 of the *Smaradahanā*, has come to the conclusion that Mpu Dharmaja composed the above work in the reign of Kāmeśvara I. As Balinese tradition regards Dharmaja as the son of Yogīśvara,

¹ Raffles, *History of Java*, Vol. II, 1830, p. 86.

² N. J. Krom, *Hindoe-Javaansche Geschiedenis*, p. 227.

³ See the chronological table in Raffles, *op. cit.*, p. 86.

⁴ Verhand. Bat. Genoot., dl. XXII, No. 11, p. 12.

⁵ *Verspreide Geschriften*, Vol. IX, pp. 70-71.

he thus naturally lived in the second quarter of the 12th century A.D. Kāmeśvara also lived in that period. We do not, however, think that there is adequate ground to identify the writers of the *Lubdhaka* and the *Vṛttasañcaya*, as Dr. Krom has done. There is no independent testimony excepting probably the similarity of names. So the writers of the *Vṛttasañcaya* and the *Smaradahana* were sons of Yogīśvara. Excepting (explainable) linguistic evidences, our opinions do not run counter to any published data and, therefore, we can accept 1094 A.D. as the date of the Old-Javanese *Rāmāyaṇa*. This is also an interesting synchronism on the year 1094 A.D.

Now the question is, what event is commemorated in that way? What is the significance of the year 456 A.D. in Indo-Javanese history?

We know that in Java there were current two eras, the Śaka era and the Sañjaya era. Here we get another unspecified Javanese era. We are of opinion that this year marks the advent of the Sakas in Java. It is not possible that Candragupta II destroyed the Śakas root and branch. It is probable that they continued to hold their precarious existence in the neighbourhood of Gujarat and made a final attempt during the last years of Kumāragupta I. The Puṣyamitras, Hūnas, and Mlecchas have been referred to in the inscriptions of this period, and the Gupta empire 'had been made to totter' by them. The third verse of Skandagupta's Gīrnar inscription refers to his humbling the enemies. We believe, the Mlecchas of the Junāgaḍh inscription were the Śakas, who, having no longer any foothold in India, sailed for Java. It is noteworthy that the Gīrnar inscription of Skandagupta, which records his final triumph, is dated in 456 A.D. If the emendation of Mr. Divekar regarding the Puṣyamitras be accepted, we can identify the Śakas with the 'Amitras'; if not, there is no objection to our identifying them with the Mlecchas. The traditions of their emigration are possibly traceable in the folk-songs of Gujarat and South Marwar.¹ It is also noteworthy that no inscription of Java can be dated before 456 A.D. in the Śaka year, while the very next inscription—that of King Sañjaya—is dated in 654 S.E.

An objection may be raised to our hypothesis on the ground that in 456 A.D. Gujarat was known as Lāta and, according to Dr. D. R. Bhandarkar, this continued up to the middle of the 10th century A.D. Now, another legend of Java says, 'During the reign of the last of these princes, either the seat of government had been removed, or the country had changed its name, for it was then called Kuḍrat or Gujarat'. The last of these princes is Kusuma Citra. If he be identical with Kusuma Vicitra, then the date would fall in 1094 A.D. So,

¹ Bombay Gazetteer, Vol. I, pt. I. pp. 491ff.

within a century, the change of the name of Lāṭa to Gujarat became familiar to the Javanese peoples. Besides, these legends or semi-historical works were prepared in the Post-Majapahit period to give an aristocratic colour to some ruling dynasties. The copyists lacked chronological ideas and it cannot be expected that we must always find sober history from their pen. Still, they contain some valuable data.

A second objection may be raised to our hypothesis on the ground that the year 456 A.D. may as well commemorate the introduction of other eras of India. Let us discuss this point. It is clear enough that the first Javanese year or 456 A.D. cannot be the Vikrama era of 58 B.C. or the Traikutaka-Kalacuri-Cedi era of 248-49 A.D.; because, in that case, they would not only confuse the whole Javanese chronology, but would have us believe that these Indian systems of time-reckoning, too, made their way to Java, which they never did, at least there is no proof. On the other hand, inscriptions and literary evidences of Java describe in no uncertain terms the penetration of the Śaka system in Java. It may be argued again that as King Sañjaya's forefathers belonged to Kuñjara-kunja of Southern India, his ancestors might be regarded as responsible for the introduction of the date commemorated in 456 A.D. In that case, the ancestry of King Sañjaya has to be pushed at least 276 years back, so that the date may synchronize with 456 A.D. Allowing 25 years for each generation, we shall require at least 11 generations to reach the year 456. While we do not know whether the ancestors of King Sañjaya went to Middle-Java in 456 A.D. and were of sufficient importance to impose the Śaka era, we know, on the other hand, from Javanese literary traditions that the Śakas of Gujarat went there in very earliest times. The name of Adji Śaka as responsible for the introduction of Śaka year in Java, as represented in many legends of Java, is equally significant. The outburst of Śaivism somewhat later in Middle-Java also points to the same direction. As we know that many Śaka satraps of W. India were followers of the Śaiva cult, the reference to Śaivism in Java after 456 A.D. is the proof of a historical fact. The cumulative evidence we have offered above explains all facts known from inscriptions and other sources. Our conclusion, therefore, is that a certain local Śaka chieftain of Gujarat, probably Aji Śaka by name, being deprived of his country by Skandagupta embarked for Java and introduced there the system of year-computation in 456 A.D. Our hypothesis need not be revised even if it be not Aji Śaka, who is yet a half-mythical person.

The Chhindas of Magadha and Gaudesvara Madhusena.

By JOGENDRA CHANDRA GHOSH.

The following is the concluding portion of the colophon of the Bauddha *Pañcharakshā*, manuscript No. 4078, as given in the *Descriptive Catalogue of the Buddhist Manuscripts*, Vol. I, by H. P. Shastri :—

‘ *Parameśvara-parama-saugata-parama-mahārājādhirāja-śrī-mad-Gauḍeśvara-Madhusenadevakānām pravarddhamāna-vijaya-rājye yatr-āñken-āpi Śaka-narapateḥ Śakāvdaḥ 1211 Bhādra di 2.*

Shastri wrote an article on the old Bengali characters in the *Vanḍiṃyā Sāhitya Parishat Patrikā* (Vol. XXVII, pp. 1–12), and with it published a facsimile of this colophon as well as a reading of it, as given above. Therein he said that the manuscript had been copied in East Bengal, and that Madhusena had been an independent king of East Bengal. He has not, of course, cited any authority or given any reason for so thinking. Nor have we been able to find anything in the *Descriptive Catalogue* to that effect.

On the statement of Shastri, that this king reigned in East Bengal, some have taken him to be the last king of the Sena dynasty of Bengal. This view seems to us untenable for more reasons than one. We have already seen that there is no authority for saying that he ruled in East Bengal. On the other hand, there is evidence to show that at about this period there reigned a king named Danujamādhava. According to the *Kulakārikā* of Harimīśra, a king named Danaujamādhava succeeded the Sena dynasty (*Sena-vaṃśād-anantaram*).¹ A few years ago a charter granted in the third year of reign of a king named Danujamādhava Daśarathadeva was discovered at Ādābāri in Vikramapura (Dacca) by Mr. N. K. Bhattasali.² Both these kings have most probably correctly been identified with the independent king Danuja Rai. According to Ziaud-din Barni he helped emperor Ghiasuddin Balban to cut off the retreat of rebel Tugril Khan by water (1280 A.D.). At one time this Danujamādhava was considered as a Sena king, but after the discovery of the Ādābāri plate this view can no longer be entertained. It is distinctly stated in that charter that he belonged to the Deva dynasty (*Dev-ānvaya*). What evidence we have up to date shows that Danujamādhava came

¹ *J.A.S.B.*, Vol. LXV, Pt. I, p. 31.

² Bengali magazine *Bhāratavarsha*, Pausha, 1332 B.S.

to the throne after the Sena dynasty was over, but there is no evidence to prove that he was again succeeded by a Sena king.

Again there is not a scrap of evidence, either historical or traditional, that in the last quarter of the thirteenth century there was relapse of Buddhism in East Bengal and that the last Sena king espoused Buddhism. On the other hand, it is said that the highest persecutions of the Musalmans fell on the Buddhists. As a consequence some of them fled to countries like Nepal and Tibet and others became either Hindus or Musalmans.

We are, however, inclined to think that this Madhusena might have been connected with the Buddhist Sena kings of Bodh-Gaya. They are styled as *Pīṭhi-pati* and *Āchārya*.¹ We know the names of two kings of this dynasty from their own inscriptions. They are Buddhasena and his son Jayasena. The latter reigned in the 83rd year of Lakshmanasena's *atītarājya*.² In a fragmentary Bodh-Gaya inscription one Jayasena has been described as the *āchārya* of a Chhinda named Śrī-Pūrṇabhadra.³ He is also said therein to have added lustre to the seat of Kumārasena (*Kumārasen-āsana-dyotah*). So Kumārasena was most probably the founder or a prominent member of this line. This *āchārya* Jayasena is no doubt the same as the *Pīṭhi-paty-āchārya* Jayasena.

Pīṭhi does not seem to have been the name of any kingdom, but refers to some sacred seat of a sage or a deity, and thus a *tīrtha-sthāna* (cf. the fifty-two *Pīṭha-sthānas* of the Hindus). In the present case it most probably refers to the *Vajrāsana* of Bodh-Gaya, as has been suggested by Mr. Panday in connection with the Janibigha inscription.⁴ These *Pīṭhi-paty-āchāryas* were something like *Mohant-maharajas* having sway over Bodh-Gaya and its immediate surroundings. Pīṭhi, therefore, is not a synonym of Magadha as has been supposed by some. These *Pīṭhi-patis* were in all probability under the *Magadhādhipas*. We need not be misled by the high-sounding title of *Gauḍeśvara* assumed by Madhusena. At this period when there was no strong overlord in Gauḍa, even petty local chiefs arrogated themselves to this honoured title, or their sycophants pleased the vanity of their lords by this much-coveted appellation. Viśvarūpasena cannot be said to have his dominions outside East Bengal, but he too assumed the title of *Gauḍeśvara*.⁵

Some have identified Buddhasena with the Chhinda king mentioned in the Bodh-Gaya inscription of the Buddha's Nirvāṇa era 1813.⁶ This does not seem to be correct. We have

¹ *Ind. Ant.*, Vol. XLVIII, pp. 45-47.

² *Ibid.*

³ *Ibid.*, Vol. IX, p. 143.

⁴ *J.B.O.R.S.*, Vol. IV, Pt. III, pp. 277-78.

⁵ *Benq. Ins.*, Vol. III, pp. 138 and 177.

⁶ *Ind. Ant.*, Vol. X, p. 143.

pointed out above that *Pīṭhi-pati* Jayasena was the *āchārya* of a Chhinda family. In that inscription a genealogy of this family is also given. It begins with Ballabharāja and ends with Śrī-Pūrṇabhadra. We think that the Chhindas were then ruling in Magadha. The Chhind king referred to was most probably this Pūrṇabhadra or his father Sāmanta. Ballabharāja might be the Vallabharāja, the father of Devarakshita, mentioned in the commentary of the *Rāmacharita* as '*Sindhurājah Pīṭhi-patih*'.¹ The latter is also identified with Devarakshita of the Chikkora family, the son-in-law of Mathana or Mahana, maternal uncle of Rāmapāla, and father of Kumāradevī, queen of Govindachandra of Kanauj.² It is not understood why Devarakshita has been described as '*Sindhurāja*'. There was no such country as Sindhu near Pīṭhi in Magadha. If our suggestion is accepted, 'Chhinda' becomes identical with 'Chikkore'. Sindhurāja seems to be a Sanskritized form of Chhindarāja. Strange as it is, Chhinda Vallabharāja has been described as '*Sindhau Chhind-āuvayaja*', i.e. born in the Chhinda family of the Sindh country in the fragmentary Bodh-Gaya inscription mentioned above. This family might have originally belonged to some royal dynasty of Sindh. Chikkore was perhaps their capital. This may explain why Devarakshita has once been described as '*Sindhurāja*' in the commentary and again as of the 'Chikkore *vaṃśa*' in the Sāranātha inscription of Kumāradevī. The Chhindas are one of the 36 *Rājakulas*, but we do not find any mention of the Chikkore family anywhere else. Again we do not find the name of Devarakshita in the genealogy of the Chhindas mentioned above. There Vallabharāja's son is Deśarāja. This may be either due to the misreading of the name 'Deśarāja' for 'Devarāja', or because those who came after were not his descendants but of his brother, Deśarāja. Bhīmayaśas, the king of Magadha and Pīṭhi and one of the principal allies of Rāmapāla, was perhaps the grandson of Deśarāja whose name could not be read. We make these suggestions for what they are worth.

Bhīmayaśas was both Magadhapati as well as Pīṭhipati.³ This shows that he exercised both secular and religious powers. It must be after him that the Senas, who were the *āchāryas* of the family, came to exercise the powers as *Pīṭhipati* and *āchārya*.

¹ *Rāmacharita*, ch. II, pp. 37-38 (*Memoirs*, A.S.B., No. III-1).

² *Ep. Ind.*, Vol. IX, pp. 324-327.

³ *Rāmacharita*, commentary on ch. II, verse 5.

Jinendra's Nyāsa in Champā.

By JOGENDRA CHANDRA GHOSH.

It is now a settled fact that people from India crossed the sea and went over to Java, Bali, Sumatra, Siam, and Champā. They carried with them their language, religion, art, and science. We shall to-day give information about the itinerary of a Sanskrit grammar from India to Champā. This has hitherto escaped the notice of our scholars. The information is supplied by a *stalæ* inscription in connection with the setting up of an image of Bhagavatī by king Indravarman III of Champā. It was found in Po-Nagar and is dated the Śaka era 840=918 A.D. It gives the following description of the erudition of the king :—

‘ *Mimāṃsa=shaṭ=tarka=Jinendra=sūrmis=sa=Kā-
śikā=vyākaraṇ-odak-aughaḥ |
Ākhyāna=Śaiv=Ottara=kalpa=mīnaḥ paṭiṣṭha eteshv=iti
sat-kavinām ||* ’

This has been translated as below :—

‘ He who (skilfully played in the) good waves which were the systems of Philosophy beginning with Mimāṃsā and those of Jinendra (Buddha) and in the mass of water which was (Pāṇini's) grammar with Kāśikā, who was a fish (in the water) which was the *Ākhyāna* and the *Uttarakalpa* of the Śaivas : because among the learned, he was the most skilful in all these subjects.’ (*Ancient Indian Colonies in the East*, Vol. I, Champā, Book III, pp. 138-9, by R. C. Majumdar.)

The translator is apparently ignorant of the fact that Jinendra is the name of an author of a grammar. He has, therefore, interpreted Jinendra as Buddha. *Sa-Kāśikā-vyākaraṇa* indicates that some other *vyākaraṇa* (grammar) was read with the *Kāśikā*. If Jinendra is interpreted as above, there is nothing in the verse to show what other grammar was read with the *Kāśikā*. The translator, to supply this omission, has suggested ‘Pāṇini's’ within a bracket. *Sa-Kāśikā* shows that the *Kāśikā* was the principal grammar with which some other subsidiary grammar, i.e. the commentary on the *Kāśikā* was read. The *Pāṇini* cannot be this subsidiary grammar. On the other hand *Kāśikā* is a commentary of the *Pāṇini*. So Jinendra here should be interpreted as the grammar by Jinendra or Jinendrabuddhi, which is a commentary on the *Kāśikā*. It is called the *Nyāsa* or *Kāśikā-vivaraṇa-pañjikā*. There is, however, a system of grammar known as Jinendra-vyākaraṇa. The traditional author of which is Jina Mahāvīra, the last tīrthaṅkara of the Jains.

He is said to have revealed a grammar to Indra, which came to be known by their conjoint names of Jina and Indra, i.e. Jinendra. In fact the real author is Devanandī. Here Jinendra obviously refers not to this Jinendra-vyākaraṇa but to the *Nyāsa* or *Kāśikā-vivaraṇa-pañjikā* by Jinendrabuddhi, as we have pointed out above.

Mr. Belvalkar says that Jinendrabuddhi is later than 700 A.D. (*Systems of Sanskrit Grammar*, p. 38). Mr. Dineshchandra Bhattacharyya, on the other hand, holds that he cannot be referred to any date earlier than 800 A.D. (*Sir Ashutosh Mukerjee Silver Jubilee Volumes*, Vol. III, Part I, p. 194). He says that the *Nyāsa* was studied in Bengal even up to the first decade of the 19th century (*Ibid.*, p. 189), and that except a solitary *Nyāsodyata*, all the ancient and modern commentaries on the *Nyāsa* hail from Bengal. Taking this fact along with the fact that Bengal under the Pāla kings in the 9th century was the last resting place of Buddhism, he has come to the conclusion that Buddhist Jinendrabuddhi may be looked upon either as a native of Bengal, or one who had lived and worked long in that province (*Ibid.*, p. 197). Letting apart the question of the nativity of Jinendrabuddhi, there is no denying the fact that the *Nyāsa*, like some other systems of grammar which had been ousted from their land of birth, found their asylum in Bengal and were assiduously studied here. So it is not unlikely that the *Nyāsa* travelled to Chāmpā from Bengal.

The *Nyāsa* or the *Kāśikā-vivaraṇa-pañjikā* has been published by the Varendra Research Society under the editorship of Pandit Śris Chandra Chakravarti. A complete manuscript of the work was not available anywhere in India. So the editor had to collect the different parts from different places. Of all the commentaries on the *Kāśikā* this is said to be the best.

We find that king Indravarman III was well-versed in the *Śaivottarakalpa*. It may be that this was also carried from Bengal. Bengal had been an important centre of Śaivism from a very early period. According to the *Vāyu-Purāṇa* (Chap. XXIII), the twenty-fifth *avatāra* or incarnation of Maheśvara named Daṇḍi Muṇḍiśvara or Muniśvara appeared in Kotivarsha. It was the name of a *viśaya* or district under the Paundravarddhana-bhukti in Bengal. The twenty-eighth or the last *avatāra* was Nakuliśa, who has been assigned to the second century A.D. So the twenty-fifth *avatāra* might be at least a century earlier. There is ample evidence in the South Indian epigraphy to show that in the twelfth and the thirteenth centuries Śaiva Brāhmaṇas from Bengal went over to Southern India and spread Āgamic Śaivism there. That *Uttarakalpa-tantra* was prevalent in Bengal even to a late period is evident from the fact that it has been quoted in the *Śāktānanda-taraṅgiṇī* of Brahmānanda of Bengal. Another work of similar name, i.e.

Uttara-tantra has been quoted in the *Tantra-sāra* and also in the *Śāktānanda-taraṅgiṇī*. The author of the former is Kṛishṇānanda Āgama-vāgiśa of Bengal. There is yet another work named *Śrīmatottara-tantra*, which is said to have been brought down to earth by Śrī-kantha-nātha of Śrī-chandrapura in Chandradvīpa of Bengal (Asiatic Society of Bengal, *Nepal Catalogue*, MSS. No. 299). This has been quoted by one Padmanābha. There were several Padmanābhas. One Padmanābha, son of Karunākara, is called later Durvāsas (Aufrecht). In one book it has been said that Durvāsas brought the Tantras to this world. In another work we find that he lived at the Āmaradaka Matha of the Śaivas. He is said to have founded a Śaiva sect. The well-known Golakī-maṭha was founded by a *Śaiv-āchārya* of this sect (*An. Rep. S.I. Ep.* for 1916-17, pp. 123-125). Āmaradaka occurs in several Purāṇas and also in the *Harsha-Charita*. So this *Śrīmatottara-tantra* must be pretty early.

There is yet another evidence to show that Bengal was once a strong hold of Śaivism. Viraka, the chief attendant of Śiva, incarnated as Nandī there was the son of sage Silāda of the Śālaṅkāyana *gotra*. Many Nandī families are still to be found in North Bengal. The Jāpyeśvarakshetra of the *Śiva-Purāṇa* (Pt. IV, ch. 47) and the Jāpyeśvara of the *Līṅga-Purāṇa* (Pt. 1, ch. 43) and the Jalpīsa of the *Kālikā-Purāṇa* (ch. 77) was the seat of Nandī's austerities to obtain Śiva's boon. The *Kālikā-Purāṇa* places it to the north-west of Kāmarūpa (Assam) with the five rivers called Pañchanada. According to the *Śiva-Purāṇa* these five rivers are Yajñodakā, Trisrotā (modern Tista, on which is the town of Jalpaiguri), Mahānadi (also called the Mahanandā, on which is the town of Malda), Jāmbu, and Bhuvanā. The Jāmbu cannot be traced now, but the name Jambunadi occurs in one of the five charters found at Damodarapur in the Dinajpur district (*Ep. Ind.*, Vol. XV, p. 143). The Bhuvanā is apparently the Bhuvaneśvara of the Faridpur district as given in Rennell's map. There is evidence to show that the upper course of this river has latterly assumed different names. Jalpīsa līṅga is still in the district of Jalpaiguri. The name Jalpaiguri is supposed to have been derived from Jalpīsa.

Worship and Propitiation of Wild Animals at Uttarbhadra, Lower Bengal.

By SUNDER LAL HORA.

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The cult of the worship and propitiation of wild animals, particularly of those that are harmful to man, is widely spread all over India and has been practised in this country from time immemorial. There can hardly be any doubt that this custom was born out of fear of these animals and the desire to propitiate them and acquire their good will. The loss of human life through the attacks of serpents, tigers, crocodiles, etc., is probably nowhere greater than in the Sundarbans, which lie in the lowest part of the deltaic region of the Ganges. Dr. B. S. Guha of the 'Zoological Survey informs me that there are indications that the Sundarbans, the upper part at any rate, were at one time considerably populated as testified by the numerous archæological remains that have been found. At the present time, it is a dense jungle, infested with wild animals of all descriptions, and almost denuded of human habitation. Moreover, it is a very malarious and unhealthy tract. In spite of all these disadvantages, it is resorted to annually, between October and May, by a large number of people who go there for wood-cutting and fishing. It is no wonder then that a great variety of worship intended to propitiate the deities of Jungle Terror of all sorts, mostly of those associated with wild animals or with the security of boats in the treacherous, tidal creeks of this area, is found in the Sundarbans or in the villages in its neighbourhood. The implicit belief of these simple and illiterate people in the efficacy of such practices gives them enough courage to enter the forests and emboldens them to work there in spite of great many dangers that surround them.

Uttarbhadra, where the worship described below was noticed, is a small trading village on the Piali Nadi about 23 miles to the south-east of Calcutta and 5 miles beyond Baruipur. It is well known that 'the country in the Maidanmal or Mednimall *pargana* (south of Tolly's Nullah and containing Baruipur), was formerly a dense jungle, overrun with wild beasts' (O'Malley, 1914, p. 74). Now the whole of this *pargana* and also the country to the south of it between Baruipur and Uttarbhadra has been reclaimed, and vast stretches of 'paddy' fields are to be seen on both sides of the road which runs on

a high embankment. Thus the jungles and their attendant dangers have almost disappeared, but the popular beliefs in the jungle deities still survive, though in a somewhat modified form. In this article, it is not intended to describe in detail these popular beliefs, which are fairly well known and have received the attention of several scholars, but to direct attention to the modifications that some of them have undergone, presumably due to a change in the environment and outlook of the people. It seems that the laws of nature that govern the form and behaviour of an animal are the same that influence the practice in popular beliefs in the human society. I have shown elsewhere (1930) how animal organization and behaviour become moulded under the direct effect of the environment and the present study regarding the popular beliefs of man leads exactly to the same conclusion. This similarity is still further augmented by the fact that the changes take place gradually and in a connected series and do not represent sudden jumps. Sewell (1929) has already directed attention to the paramount importance of the study of 'ecology' in dealing with anthropological problems, and I feel that this point cannot be stressed too strongly.

During the early part of 1933, several visits were paid to Uttarbhag to study the brackish water fauna of the pools and ponds in its neighbourhood. On the 8th of February, it was noticed that some kind of *pūjā* had been performed at three different places in the village. The four images of 'Dakshindar', placed on a mud platform, at each of these places formed the most conspicuous feature of the ritual. By standing over the bridge across the sluices, all the three places of worship could be seen and it was found that an identical type of *pūjā* had taken place. The spot near the commencement of the road to the Surjyapur Khal and behind the paddy-market was selected for a detailed study. There were representations of four distinct deities, e.g. *Manasā*, the serpent goddess; *Makar*, the crocodile; *Dakshindar* or *Bōn Bibī*, and *Pāñch-pūr*. Efforts were made to get full particulars regarding the composite *pūjā*, but the information supplied by different people during this, as well as subsequent visits, was so conflicting that it need not be given here. I have formed an opinion that these people have no conception of the godlings they worship; not one of them was able to give a complete and connected story. We were informed that a Brahman *Purohit* or priest residing at Baruiপুর performed the *pūjā* and he was the right person to approach for information. Unfortunately our two attempts to meet the man were unsuccessful.

We were, however, able to gather that the *pūjā* is performed jointly by the Hindus and the Muhammadans, and that the services of a Hindu priest are requisitioned for the worship of

Manasā and *Makar*, while that of a Muhammadan priest, usually a *faqīr*, for the worship of *Pāñch-pīr* and *Bon Bibi*. The *pūjā* when performed by a Muhammadan *faqīr* would be called a *shīrīnī*. Here it may be recalled that wood-cutters when going to Sundarbans always take their *faqīr* with them who performs *shīrīnī* before the commencement of the work. The *faqīr* is said to possess power to drive away tigers, crocodiles, and other harmful beasts of the jungle. Sunder (1903) has described in detail the mode of worship practised by these priests. After certain preliminaries, the *faqīr* builds seven small huts in which are housed *Jagabandu*, *Mahādeva*, *Manasā*, *Kālī-māyā* or *Kālī*, *Kāmeśvarī* and *Burhī Thākuranū*, *Ghāzi Sāheb* and *Kālū*, and *Chāwal Pīr* and *Ram Ghāzi*. Besides these godlings, *Rūpapārī*, *Bāstu Devata*, *Orparī*, and *Rakṣā Chaṇḍī* are also worshipped. *Rūpapārī* and *Orparī* have a platform each outside the seven huts, while the trunk of a tree represents *Rakṣa Chaṇḍī*. *Bāstu Devata* is not represented by any material emblem. The *pūjā* referred to above is simplified at Uttarbhag by eliminating a certain number of deities. It is significant, however, that in January-February the village people perform the *pūjā* of several deities at one and the same time, instead of worshipping each deity separately on the appropriate day in the year. A short account of each godling worshipped at Uttarbhag is given below :—

*Manasā*¹ (Pl. 3, fig. 1).—In Bengal, *Manasā*, the goddess of snakes, occupies a foremost place. It is believed that if her worship is neglected someone in the family is sure to die of snake-bite. During monsoons in the month of *Śrāvaṇa* (July-August) a festival is held in her honour and she is worshipped on that day. Her image (she is represented 'sitting on a water-lily and clothed with snakes'), or a branch of her sacred tree (*Siju* or *Euphorbia*), or, a pan of water surrounded by clay images of snakes are taken to represent the deity. In some places the snake godling 'is represented by a pot marked with vermilion and laid under a tree, with clay snakes ranged round it, and a trident, the weapon of Śiva, driven into the ground' (Crooke, 1926). Rai Bahadur Rama Prashad Chanda informs me that the worship of *Manasā* in the Dacca District takes place on the last day of the month of *Śrāvaṇa*. It is called *Manasā pūjā* or *Nāg-pūjā*. The goddess is worshipped with *aṣṭa nāga* (eight-headed cobra) and *Bīallish Nāga* (forty-two-headed cobra). The favourite

¹ For details of the worship of the goddess *Manasā* reference may be made to such standard works as Vogel, *Indian Serpent Lore*, p. 278 (London : 1926); Crooke, *Religion and Folklore of Northern India*, pp. 383, 384 (London : 1926) and Crooke in *Encyclopædia of Religion and Ethics*, XI, p. 413 (Edinburgh : 1920). For a historical account of the *Manasā* cult see Sen, *History of Bengali Language and Literature*, pp. 252-276 (Calcutta : 1911).

offering of *Manasā* is milk and plantain. A Brahman priest performs the *pūjā* with recitation of Sanskrit verses. There are, no doubt, other ways of representing the deity also, but so far as I have been able to ascertain the mode of representing this godling at Uttarbhag by two conical mounds of mud is quite different from all others so far known. Each mound has three clay heads of cobra arranged on one side and a mark of vermilion put in front of them. It seems probable that these mud-mounds are substitutes for water pans or earthen pots. The idea of water that is usually associated with the goddess of snakes is thus eliminated. It has also to be noted that the *pūjā* at Uttarbhag was performed towards the end of January or early in February and not, as is usual, in the months of July and August. The worship of *Manasā* during July-August has some meaning, for during the rainy season the burrows of snakes become flooded and they seek shelter in the huts of the villagers where they are not infrequently found hidden in beds or coiled up in pitchers and other household utensils. Thus during the monsoon months the danger from snake-bite is the greatest in the villages of Lower Bengal. In January and February, on the other hand, these reptiles usually hibernate and rarely come out of their burrows, and are thus least harmful at that time of the year. The worship of *Manasā* at Uttarbhag has thus to be treated as a relic, without any specific utilitarian background in its present form.

Makar (Pl. 3, fig. 3).—Crocodiles are greatly dreaded on account of their habit of attacking men and animals. Some individuals are known to have become very daring in their depredations. At Uttarbhag a mud model of a crocodile is made and worshipped. It may be remarked that this model, though very crude and probably hastily made, is a very good replica of the living animal. The open mouth, the teeth, the central row of high scutes on the back, the flapper-like limbs, the position of the eyes, and other features of the animal are well represented. The living animal does not usually lie with the mouth wide open, but the model is probably designed to show the beast in its most hideous and destructive attitude.

Reference may here be made to the fact that 'Some wilder tribes of Baroda, to avert injury to men and animals as well as sickness, worship *Magardeo* in the form of a piece of wood shaped like a crocodile and supported on two posts' (Crooke, 1926, p. 377). With regard to the worship of *Makar*, it has to be remembered that crocodile is believed to be the vehicle of several gods and goddesses of great repute. For instance, Rai Bahadur Rama Prashad Chanda informs me that *Gangā* or the goddess presiding over the Ganges rides on a *Makar*. The cult of *Makar* is connected with the cult of *Gangā*.

Dakshindar or *Bōn Bibī* (Pl. 3, fig. 2).—In 1915, a short note was published by Batabyal on the worship of

'Dakshindar, a godling of the Sunderbuns', with beautiful illustrations, in the *Journal of the Asiatic Society of Bengal*. I have nothing of importance to add to this account except that at Uttarbhag the number of images was restricted to four at each place of worship. We were informed that two of the four images of each group represented the wife of *Dakṣin Rāy* (*Dakshindar*) whom the people called *Rāymoni*. In the photograph reproduced here, first and the third images from the left represent *Dakṣin Rāy* while the other two are of *Rāymoni*. The wife of *Dakṣin Rāy* is an innovation, for no reference to her has been found in the literature studied. The markings on the crown were different in all the four images. Two of the images had their faces turned towards one side while the other two had their gaze fixed on the other side. This was probably intended to frighten away tigers coming from either of the two sides. *Dakshindar* is probably the principal godling worshipped, as it seems to have been provided with a canopy at the time of worship. The four poles struck on four sides of the mud-platform are indicative of this fact.

The images are placed on a mud-platform resembling a Muhammadan tomb or *dargāh*. A Muslim priest performs the worship and the Muhammadan name for the godling is *Bōn Bibi*, which means the goddess of forests (see Hora, 1934).

Pāñch-pīr (Pl. 3, fig. 4).—A mud-platform resembling a Muhammadan tomb with five balls of earth placed on it represents *Pāñch-pīr*. The adoration of *Pīrs* or Muhammadan saints is common among Mussalmans and more superstitious among the Hindus also offer *pūjā* to them, for they are credited with supernatural powers. Mr. Md. Enamul Haqq has very kindly given me the following note on the cult of *Pāñch-pīr* in Bengal :—

'Belief and practices in connection with the cult of *Pāñch-pīr* belong to those religious superstitions of Bengali Muslims and Hindus of lower order, which arose out of the fusion of Hindu and Muslim culture. The quintette of *Pāñch-pīr* or the "Five Saints" is commonly adored and worshipped by both Hindus and Muslims as a coterie of aquatic and sylvan deities. This quintette is specially popular among the wood-cutters of Sundarban and Sonārgāon and among the sailors of East Bengal. There are five tombs of *Pāñch-pīr* in Sonārgāon near Dacca and at the outskirts of the Sundarban area in the District of 24-Parganas.

'The names of the "Five Saints" are not definitely known and the same names are not universally adopted. People of various localities explain them variously and one of the interesting features of their heterogeneous explanation is that a few local saints of obscure origin are always added to the list along with a few other historical ones. As for example, people of Sonārgāon locality say that the following five saints are

Pānch-pīr : (1) Ghayāthu-'d-Dīn, (2) Shamsu-'d-Dīn, (3) Sikandar, (4) Ghāzī, and (5) Kālu. According to the people of Chittagong the five saints are : (1) Bara Pīr, Abdul Kādir Jilāni, (2) Shaykh Farīd, (3) Khwajah Mu'inuddin Chishtī, (4) Khwajah Khidr, and (5) Badr Shāh.

'The Five Saints are widely believed all over East Bengal to be the patron saints of the sailors and wood-cutters. In some places in West Bengal, such as Midnapore, they are worshipped as a quintette of family deities who are believed to look after the general welfare and prosperity of the family.'

Rai Bahadur Rama Prashad Chanda, late of the Archaeological Survey of India, informs me that the boatmen of the Dacca District, when in trouble, recite the following verse :—

āmarā	āchhi	holāhān
we	are	children
Ghāzi	achhe	nikaman
the Ghazi	is	our guardian

Pānch-pīr Badr Badr Badr.

At Uttarbhag, I tried to get the names of the five saints that had been worshipped, but without any success. My informants said something about Ghāzī Sāheb, his brother Kālu, and his son Chāwāl Pīr, but no one was able to enumerate the five Pīrs. By a study of the literature, I have come to the conclusion that the following five saints may have been worshipped at Uttarbhag :—(1) Ghāzī Sāheb. The most famous of the Pīrs of the District of 24-Parganas is Ghāzī Sāheb, who is supposed to exercise great control over tigers and crocodiles and secure relief from sickness and disease. He helps the wood-cutters ; (2) Kālu, a brother of Ghāzī Sāheb ; (3) Chawāl Pīr, a son of Ghāzī Sāheb ; (4) Ram Ghāzī, a nephew of Ghāzī Sāheb ; and (5) Machandāli Saif, a saint that is supposed to help the crews of boats in their troubles during navigation, etc. The saints Nos. 2, 3, and 4 are, no doubt, worshipped on account of their close association with Ghāzī Sāheb. Dr. S. K. Chatterjee is of the opinion that the name Machandāli is due probably to a confusion of Hindu and Muhammadan elements. Matsyendranātha or Machhindarnāth was a great yōgī who obtained supernatural knowledge by hiding inside the stomach of a fish and listening to a discourse between Śiva and Umā. Gorakhnāth of legendary fame was the most renowned disciple of Machhindar. In Machandāli, it is probable that a faint memory of the saint Machhindar lingers ; 'Ali', the final element in the name, is that of Ali, the son-in-law of the prophet.

I take this opportunity to express my sincere thanks to Rai Bahadur Rama Prashad Chanda, Dr. S. K. Chatterjee, Dr. B. S. Guha, and Mr. Md. Enamul Haqq for their valuable

suggestions, all of which have been incorporated in the paper with suitable acknowledgements. Babu D. N. Bagchi helped me in the field and took the photographs. For this my thanks are due to him.

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A general view of one of the sites of Worship at Uttarbhag.



FIG. 2 *Daksh nān* or *Bm Bibu*



FIG. 1 *Vanasā*, the serpent goddess



The Science of Medicine under the Abbasids.

By M. Z. SIDDIQI.

THE CAUSES OF THE SPEEDY DEVELOPMENT OF ARABIAN MEDICINE IN THE ABBASID PERIOD.

The advent of the Abbasids marked a new era in the history of the development of Arabian medicine. They came to power and there arose the magnificent building of Arabian medicine with all its parts well developed. The rapid rise of this science, in the short space of less than two hundred years, can be comprehended only in the light of the collective circumstances that led to it, namely, the previous development of Medical science by the Greeks and the Indians, the work done in connection with Arabian medicine and the development of Arabic grammar and scientific prose literature under the Umayyads, the keen interest of the Abbasid Caliphs and their courtiers in literary activities, and the ample means and appliances which they had at their disposal for the promotion of Arabian medicine.

THE INTEREST OF THE CALIPHS.

All the early Abbasid Caliphs from al-Manṣūr to al-Mutawakkil were great patrons of learning and of the learned. Al-Manṣūr was himself a scholar,¹ and being fond of the company of scholars he urged his son, Maḥdī, to frequent their society.² He took a keen interest in Astronomy and other sciences, and also in literature.³ Maḥdī had less taste for scientific studies and was not so broad-minded as his predecessor or successors, still he was himself a literary man⁴ and his generosity towards literary men was unprecedented.⁵ Al-Hārūn's literary and scientific interest is too well known to need emphasis. His love of literature and science was further excited by his acquisition of a large number of books in his campaign in Asia Minor (at the conquest of Angora). In order to preserve the previously-collected and the newly-acquired books and to make the best use of them, he founded the Baytū'l-Hikmat, organised the library and the translation department, appointed Faḍl b.

¹ al-Mas'ūdī, Murūju'l-Dhahab, vol. 8, p. 292.

² Annals of al-Ṭabari, series 3, p. 404.

³ Murūju'l-Dhahab, vol. 8, pp. 290-292.

⁴ al-Suyūṭī, Tārikhu'l-Khulafā, 1857, p. 275.

⁵ Ibn Khallikān, ed. Wustenfeld, No. 252; Kitābu'l-Aghānī, Vol. IX, p. 40.

Núbakht to supervise the translation of Persian books into Arabic. He entrusted the task of supervising the translation of Greek medical works¹ to Yúhanná b. Māsawayh, who had many assistants under him. Al-Mámún organised and sent a commission to Byzantium in order to acquire Greek scientific books.² Al-Mu'tasim approved the strict measures taken by Afshín in regard to the apothecaries³ and supplied Yúhanná b. Māsawayh with big monkeys for dissection.⁴ Al-Wáthiq's long and interesting discussion with the learned medical men of his time concerning the fundamental principles of the science of medicine, their basis, and the method followed in establishing them, shows his keen interest in medical science and its history.⁵ Al-Mutawakkil, in spite of his orthodox views, knew the worth of real scholars and did not hesitate to promote the learned Christian physicians to the position which they deserved. He had promoted Hunayn b. Isháq from the position of an ordinary translator to that of superintendent of the translation department,⁶ and made him the head of the physicians in Baghdád⁷ and he appointed Rabbán al-Tabarí, who worked as foreign secretary of al-Mu'tasim, as his own courtier.⁸

According to the Arabic proverb النَّاسُ عَلَى دِينِ مُلُوكِهِمْ, people follow their Kings, the interest of the Caliphs in the science created an interest for it in their courtiers and subjects also. Isháq b. Sulaymán b. 'Alí al-Háshimí,⁹ Muhammad b. 'Abd'l-Malik al-Zayyát,¹⁰ Ibnu'l-Mudabbir,¹¹ 'Abdul-Láh b. Isháq¹², the family of the Barmacides¹³ and of the Banú Músá¹⁴

¹ Taríkhul-Hukamá, pp. 255, 380. Cf. Ṭabaqátul-Aṭibbá, vol. 1, p. 175.

² al-Fihrist, p. 243.

³ Taríkhul-Hukamá, p. 189.

⁴ Ṭabaqátul-Aṭibbá, vol. 1, p. 87.

⁵ Murúju'l-Dhahab, vol. 7, pp. 173-180. A description of the principles of the empirics and of the methodists is given in this discussion.

⁶ Ṭabaqátul-Aṭibbá, vol. 1, p. 189.

⁷ *Ibid.*, p. 198.

⁸ al-Fihrist, German Edition, p. 296.

⁹ He got a Sanskrit book on drugs translated into Arabic by Manka (al-Fihrist, p. 303). He was interested in Indian medicine, probably because he had lived in India as a governor of Sindh (al-Ṭabarí, vol. 3, p. 609).

¹⁰ He used to spend about two thousand dinars a month on translators and copyists (Ṭab., vol. 1, p. 206). For his interest in literature see Kitábul-Aghání, vol. 20, pp. 46-47.

¹¹ *Ibid.*

¹² *Ibid.*

¹³ Yahya b. Khálid got the compendium of Susruta translated into Arabic (al-Fihrist, p. 303).

¹⁴ The Banú Músá, who are also known as Banú Munajjim, were the greatest patrons of Arabic scientific literature after the Caliphs. They sent a commission to Byzantium to acquire Greek works (al-Fihrist,

are some of those courtiers and private persons who showed great zeal in attracting students of medicine to Baghdád and in encouraging them to enrich Arabic medical literature with translations and independent contribution.¹

BAGHDÁD AS A GREAT LITERARY CENTRE.

Baghdád, the Metropolis of Islam, thus assumed the fallen mantle of Rome and Alexandria. Hither came the most able men of the time from all quarters of the globe, attracted by the patronage of princes and private individuals, to employ their medical talents in well-stored libraries and well-equipped hospitals, and by their collective effort they produced the vast and varied literature of Arabian medicine. Here, too, trade brought a large variety of new medicaments like سناء, Senna, فُلَنْجَة, Falanja, (probably Per. Pálanga), سَلَاجِيْت, Salájít, and اَكْتَمِيْك. As regards the international aspect of its medical school, at any rate, Baghdád excelled the previous seats of learning. Neither at Rome nor at Alexandria were Indian Medical men working side by side with those of other nations, nor were so many important Indian and Greek medical works translated into any other language as into Arabic.

THE DIFFERENT GROUPS OF MEDICAL MEN.

The different groups of these men of many-sided learning helped the progress of Arabian medicine in different ways. Some translated the Greek or the Indian medical works into Arabic. Some tested and verified the medical principles established by the ancient physicians. Some tried to systematise the diverse branches of medical science into one harmonious whole. Here we will deal only with the translation of medical works into Arabic and with the verification of medical principles by the Arabic medical writers.

p. 243), brought Thábit b. Qurra to Baghdád, and introduced him and many other scholars to the court of the Caliphs (Tab., vol. 1, p. 215; Mu'jamu'l-Udabá, vol. 5, p. 460). They paid Hunayn and others 500 dinars a month for translating medical works into Arabic (Tab., vol. 1, p. 187). They had a big library which was a great attraction for people in different towns (Mu'jam, vol. 6, p. 467).

¹ Táhir, the governor of Khurásán, after making his son a Wáli of Diyári Rabi'a, wrote to him a long letter (Annals of al-Tabari, series 3, vol. 2, pp. 1046-1061), instructing him in the art of governing people. In this letter, which was much admired by Mánún and a copy of which was sent by him to all the officials, he says 'You should establish hospitals for the sick and appoint physicians and attendants to treat and attend them'. (Tabari, series 3, vol. 2, p. 1059.)

THE EARLY TRANSLATORS.

Though the translation of medical works into Arabic was resumed in the Abbaside period in the reign of al-Manṣūr, and received an organised form in the reign of al-Hārūn, yet it was not carried out on the basis of any sound principle until the appearance of Hunayn b. Ishāq in this field, about the end of the reign of al-Māmūn. Almost all the early translators, like Batriq, his son Yaḥyá, and Stephen b. Basil, were non-Arabs, lacking regular and well-grounded education in the Arabic language, the mastery of which was as essential for the purpose of translating Greek medical works into Arabic as that of the Greek language and of medical science. This deficiency in the early translators must have gravely hampered their work and rendered their translation useless for the Arabic-reading public.

REMARKS OF BAHAUDDIN.

This conjecture is corroborated by a passage in the Kashkul of Bahá'uddín-al-'Amilí. He says that Yuhanná, the son of Batriq and Ibn Ná'ima of Emessa, while translating, considered every single word of the Greek text and replaced it by its Arabic equivalent. 'This,' he continues, 'was not a sound method of translation, firstly, because Arabic equivalents could not be found for every Greek word, on account of which a large number of Greek words were used by them in their translations and, secondly, because the syntax of the two languages very often differs. Again metaphorical expressions, the use of which is quite common in every language, cannot be well translated by this method.'¹

HUNAYN AS A TRANSLATOR.

About the end of the reign of al-Māmūn there appeared in the Graeco-Arabic translation department of the Baytu'l-Hikmat the great personality of Abu Zayd Hunayn b. Ishāq al-'Ibádí who was fully qualified for translating Greek medical works into Arabic.² He knew Arabic as his native tongue and further studied it with the great grammarian Khalíl; he had learnt Greek at Alexandria, and he had received his education in medical science from Yuhanná b. Māsawayh. Being thus well-equipped, he revolutionised the old system of rigid literal translation and based it on the better principle of freely expressing the sense of the Greek texts in Arabic language without caring

¹ Kashkul, Buláq, 1288 A.H., p. 191.

² Hunayn could not have been appointed as a translator in the Baytu'l-Hikmat before 830 because he was born in 809 and it is extremely improbable that he had finished his student life before he was 21 years of age.

to render in it exactly every single word of the original Greek text. But he was not too free in his translation and he always tried to be as literal as possible, provided the sense was clearly expressed. In order to achieve this end, he did not hesitate to add certain explanatory phrases where he thought it necessary to do so.¹

HIS STUDENTS.

Some time after he had entered the translation department, Hunayn engaged other competent translators to assist him in his work. His son, Ishāq, his nephew Hubaysh, 'Isā b. Yahyā, and al-Rahāwī are some of his assistants who are mentioned by the Arab bibliographers. All of them being students and assistants of Hunayn they must have followed his method and principle in their translation. This is evident at least in the case of Hubaysh, whose translation of the 9th-15th books of Galen's Anatomy has come down to us, and has been published together with a German translation, by Dr. Max Simon. In his introduction to the Arabic text, describing the character of the Arabic text, Dr. Simon says: 'He (the Arabic translator) has endeavoured to translate all that is essential in the content, though he has dealt with the conjunctions (Bindemittel) more freely, at times very freely indeed. At any rate he has taken the trouble to render into Arabic all the component parts of a sentence, including the Grammatical ones, in some form or other, i.e. (he has followed) a principle and (taken) a liberty which even a modern translator may follow (and may take), within certain limits, if his aim is a translation faithful to the sense which is always more than a purely literal one, and which presupposes familiarity with the nature of the subject. On the whole the Arab has thoroughly succeeded in achieving his purpose'.²

THEIR CARE IN TRANSLATION.

The translator of these books of Galen's Anatomy used, besides a Syriac translation, three copies of the Greek text,³ no doubt, for the purpose of collation. If we may assume that it was the rule with the school of Hunayn to use as many copies of the Greek texts as might be available, this would indicate that they took care to make their translation as

¹ Our opinion is based on the comparison of the quotations of Dioscorides in the Mufradat of Ibnu'l-Baytār with the German translation of Dioscorides' book by Berendes. The additional explanatory phrases which are found in the quotations at many places are not found in the German translation.

² *Anatomie des Galen*, vol. 1, Int. p. XLV. He also says that many explanatory phrases are added in the Arabic text which could not have occurred in the original Greek text, vol. 1, Int. p. XIV.

³ *Ibid.*, p. XIII.

correct as possible. This is further indicated by the fact that the mastery of the subject by the translator was considered essential, as is shown by the revision of the translation of Mathematical works rendered by Hunayn and others, by Thābit b. Qurra.¹

ARABIC MEDICAL TECHNICAL TERMS.

The great difficulty which the translators of the medical works in general had to face was in connexion with the technical terms, almost all of which they must have coined. With so little of the early Arabic medical literature available, it is difficult to trace their development, still a glance at the list of the terms given below will show what system the translators followed in coining the pathological and other medical terms. Sometimes they used only phrases descriptive of the disease of the organs affected, such as وجع الركبة, وجع الجنب, وجع الرئة, وجع الكبد, etc., or they tried to express the peculiarity of the disease by means of a metaphor like داء الفيل, داء الثعلب, داء الأسد, داء البعثة, etc. Sometimes they tried to explain the peculiar character of the disease without employing any metaphor as we find in such cases as المرض المزمن, ونقطير البول, عسر البول, وحمى اليوم, وحمى الغب, الدوار, والعمى الدائمة, etc. Sometimes they used such words as were in common use, or their derivatives in a particular technical sense, like الرجاء, hope, in the sense of Hydrometra, الأكلة, the eater, in the sense of Gangrene, النملة, the ant, in the sense of Herpes, الظفرة, the nail, in the sense of Pterygium, الصداع, from صدع, to split, in the sense of Headache, الشقيقة, from شق to tear, in the sense of Hemiplegia, etc. But were the Arabs original in coining these and other technical terms? We are inclined to answer this question in the negative and say that the Arabs in most cases, if not as a rule, translated the Greek technical terms, literally, into their own language whether in Anatomy, Pathology, or Physiology. The following table of Arabic and Greek nomenclature will illustrate our remark.

ANATOMICAL TERMS.

أذن القلب	καρδίας οὖς.
أصل الجفن	ρίζα τοῦ βλεφάρου.
نطون الدماغ	κοιλίαι τοῦ ἐκλεφάλου.
وعاء الرحم, ونجوف الرحم	κόλπος τῆς ὑστέρας.

¹ al-Fihrist, pp. 265, 267.

تعجوف القلب ،
البطوية الجلدية
الطبقة الشبكية
الطبقة العنينية
الطبقة القرنية

κολίαι της καρδίας.
κρυσταλλοειδές υγρόν.
ἀμφιβληστροειδές χιτών.
ράγοειδές χιτών.
κερατοειδές χιτών.

A large number of other Anatomical terms like 'عنق الرحم' and 'فم الرحم' are nothing but literal translation of Greek terms, as may be seen by referring to the Glossary of the *Anatomie des Galen* of Dr. Simon.

PATHOLOGICAL TERMS.

The four stages of fever :—

الابتداء	ἀρχή.
التزبد or الصعود	ἀνάβασις.
الانتهاء	ἀκμή.
الهبوط or الانحطاط	κατάβασις.
الاستسقاء	ὑδρωψ.
الاستسقاء الرقي	ἀσκήτης ὑδρωψ.
الاستسقاء الطبلي	τυμπανίτης ὑδρωψ.
الاستسقاء اللحمي	ὑποσαρκίδιος ὑδρωψ.
استطلاق البطن	κοιλίας ῥύσις.
الأكلة	γάγγραινα.
البلغم العامض	φλέγμα ὀξύ.
البلغم الحلو	φλέγμα γλυκύ.
البلغم الزجاجي	φλεγμα ὑαλώδες.
شطر الغب	ἡμιτριταῖος.
(حمى الغب) الحمى المثلثة	πυρετὸς τριταῖος.
حمى الربع	πυρετὸς τεταρταῖος.
(الحمى) المحرقة	καῦσος.
داء الاسد	λεοντίασις.
داء الثعلب	ἀλωπεκία.
داء الحية	ὀφίασις.
ذات الجنب	πλευρίτις.
ذات الرية	πνευμονία.
الزرقة	γλαύκωσις.
الشهوة الكلبية	κυνοειδεῖς ὀρέξεις.

A comparison of the Greek and Arabic nomenclature will show that many other Arabic terms under this heading, e.g., the terms denoting the different kinds of urine and the different types of pulse are translated literally from the Greek.

PHYSIOLOGICAL TERMS.

القوة الجاذبة	δύναμις ἑλκτική.
الماسكة ,,	,, καθεκτική.
الدافعة ,,	,, προωστική.
النفسانة ,,	,, ψυχική.
الحيوانية ,,	,, ζωτική.
الطبيعية ,,	,, φυσική.

This method of translating literally Greek technical terms has been employed even in pharmacology. We find that the Arabic names of many plants are literal translations of their Greek names. Here we give only a few instances.

اذن الفار	μυδὸς ὦτα
بست بائه - بسفائج P. كبر الارجل	πολυπόδιον
(الرعور) ذو ثلاث حبات	τρίκοκκος
لسان الثور	βούγλωσσον
گاو زبان P. لسان العمل	ἄρνόγλωσσον.
لحبة التيس	τραγοπύγων. ¹

DEVELOPMENT OF MEDICAL ARABIC NOMENCLATURE.

Though the Arabs translated the Greek technical terms, in most cases, yet we should not be justified in concluding from

¹ The same system, it seems, was followed in some other sciences also which the Arabs borrowed from other nations. In Logic the Arabic terms given below with their Greek equivalents appear to be translations of the corresponding Greek terms.

المقدمة	Premiss	πρότασις.
حد اوسط	Middle term	ὅρος τὸ μέσον.
حد اكبر	Major term	τὸ μείζον ἄκρον.
شكل	Figure	σχῆμα
الدور	Vicious circle	κυκλὸς.
المقولة	Category.	κατηγορία.

In Alchemy ذهب فرفير and براق القمر are probably translations of χρῦσοκοράλλιον and ἀφροσέληνον respectively (Ar. Alchemisten, Heidelberg 1924, Part 1, pp. 21, 23, ft. note). But in alchemy the Arabs could not have followed this system too frequently except in regard to the names of substances, because this science was not developed by their predecessors.

this that they did not develop the medical nomenclature any further than the Greeks. Dr. Simon says that the Arabs, in a later period, advanced the formal side of the medical science by developing the Anatomical nomenclature further than what they received from the Greeks. In this they must have been helped by the scientific development of Arabic Grammar. Thus in case of single-worded Pathological terms they mostly used the form فُعَال , like خَلَق , Angina, بَغَار , Fever, كَرَّاز , Tetanus, مَصْدَام , Headache, دَوَّار , Vertigo, زَكَام , Catarrh, etc. In pharmacology they mostly used the form فِعُول , such as سَعُوط , snuff, سَفُوف , powder, حَمُول , suppository, قَبْو , emetic, لَعُوق , linctus, لَطْرُخ , plaster, etc.

It is difficult, however, to determine whether this system of translating technical terms was adopted by the early translators and maintained by Ḥunayn and his students, when they entered the translation department, on the ground that these Arabic terms had already gained currency or whether they themselves liked this system and improved it because they were unable to substitute a better system in its place.

THE SHARE OF ḤUNAYN IN GRAECO-ARABIC MEDICAL TRANSLATION.

Be it as it may, Ḥunayn and his school applied themselves heart and soul to translating Greek medical works, and almost entirely by their own exertions¹ they reproduced in Arabic, in less than fifty years well-nigh all the important medical works of the Greeks. To what extent this part of Arabic medical literature was indebted to the school of Ḥunayn will be made clear by the following table.²

<i>Greek authors.</i>	<i>The number of works translated.</i>	<i>Number of works translated by Ḥunayn's school.</i>
Galen ..	91	85
Oreibasios ..	5	3
Paulos ..	2	1
Dioscorides ..	1	1

¹ We have said this because the physicians of Jundishápur are not mentioned as translators of any medical work into Arabic. Yuhanná b. Māsawayh himself is not mentioned as a translator. The name of George, who is mentioned by Ibn Abi Uṣaybi'a as a translator (vol. 1, p. 203), does not occur in the list of the translators given by Ibnu'l-Nadīm (al-Fihrist, p. 244). Even Ibn Abi Uṣaybi'a does not say which medical works he had translated. Only one Kunnásh of George is mentioned by the Arabic bibliographers; and this book which he had written in Syriac was translated into Arabic by Ḥunayn. (Tabaqát, vol. 1, p. 125.)

² In this table I have left out those Greek authors the translators of whose works are not mentioned by Ibnu'l-Nadīm. The table is based on the statement of Ibnu'l-Nadīm (pp. 288-293).

The character of the translations executed by Hunayn's school has already been discussed. Even these translations, in spite of the great care with which they were made, were not always free from faults. Ibnu'l-Bayṭār says in connection with the word *سطرونيون* that 'Hunayn has translated it as *كندش*, which is far from being correct'.¹ He also says in connection with the word *شقراض*, that Hunayn has translated the Greek word *قسوس* (probably *κισσός*) as *شقراض*. It is strange, he says, that Hunayn has done so, because these two plants do not even resemble each other.² Dr. Simon has also referred to some mistakes in the Arabic translation of Galen's Anatomy. But, as Dr. Simon says,³ such mistakes are not many.

Hunayn and his students, apart from translating the Greek medical works, made also some independent contributions to Arabic medical literature. Long lists of their independent medical works are found in the Fihrist, and other Arabic bibliographies.

THE INDIAN PHYSICIANS IN BAGHDÁD.

Side by side with the physicians well-versed in the Greek system of Medicine, there were living at Baghdád many Indian medical men, having a thorough knowledge of their own system, who sometimes vied with their rivals and showed the efficacy of their art where the devotees of the Greek systems had failed.⁴ The names of three of them :—Manka, Ibn Dhan (?) and Šálih Ibn Bhalla (?) have been mentioned by Ibnu'l-Nadím.⁵ Ibn Abí 'Uṣaybi'a⁶, and Ibnu'l-Qiftí.⁷ It was the Barmakites, a family in touch with and revered by the Indians before Persia was conquered by the Arabs,⁸ that drew these physicians to Baghdád and established their reputation. Ja'far b. Yaḥyá suggested the name of Šálih to al-Hárún for the treatment of his cousin, Ibráhím.⁹ Ibn Dahan (?) was in charge of the hospital of the Barmakites¹⁰; Manka, who was probably in the same Hospital, was asked by Yaḥyá b. Khálid to translate the Compendium of Susruta.¹¹

The presence of these physicians in Baghdád, and perhaps the success with which they practised their art attracted the

¹ Vol. 3, p. 13. Ibnu'l-Bayṭār has also referred to other mistakes of the translators in general (though he has not mentioned the name of Hunayn), vol. 2, p. 46.

² Vol. 3, p. 66.

³ *Anatomie des Galen*, vol. 1, Int. p. XLV.

⁴ For such cases see *Ṭabaqātu'l-Aṭibbá*, vol. 2, pp. 33-35.

⁵ *al-Fihrist*, p. 245.

⁶ *Ṭabaqātu'l-Aṭibbá*, vol. 2, pp. 33-34.

⁷ *Tárikhu'l-Hukamá*, p. 215.

⁸ Prof. Browne's *Lit. Hist. of Persia*, 1919, vol. 1, p. 258.

⁹ *Ṭabaqātu'l-Aṭibbá*, vol. 2, p. 34.

¹⁰ *al-Fihrist*, p. 245.

¹¹ *Ibid.*, p. 303.

notice of al-Mámún, Isháq b. Sulaymán, and others. Thus numerous important Indian medical works, the names of a dozen of which are reported by Ibnu'l-Nadím,¹ were translated into Arabic. Ibn Abí Uṣaybi'a has added some more names to this list. Some of these works were translated directly from Sanskrit and others through Persian.

ANOTHER GROUP OF PHYSICIANS.

Simultaneously with great Hunayn and others who were busily engaged in translating Greek and Indian medical works into Arabic there was another equally or more important group of physicians at Baghdád, which thinking the translation work beneath their scholarship and dignity, or feeling themselves unqualified for this work, helped in the quick development of Arabian medicine by producing independent works in Arabic. To this group belonged almost all the physicians who came from the school of Jundishápúr and wrote any book on medicine in Arabic, and also other medical men of this period like Sábúr b. Sahl, 'Isá b. Mása and others.

THEIR WORKS.

The works of the members of this group, so far as it appears from their titles and descriptions given in the Arabic bibliographies, may be divided into two classes.

(1) Those works which dealt with the same subjects with which the ancient physicians had dealt in such of their works as were translated into Arabic, like *Kitábu'l-Hummiyát*² of Ibn Māsawayh, the '*Kitábu man la yaḥduruhu Ṭābībun*'³ of 'Isá b. Mása, etc. In these works they tried to treat the old subjects on new lines and to add the results of their own experience to what they had received from the ancients. Thus in the *Kitábu'l-Hummiyát*, Ibn Māsawayh treated the subject in a tabular form (مشجر), a form that, so far as we know, had never before been applied to such subjects.⁴

¹ al-Fihrist, p. 303.

² *Tab iqtá'u'l-Aṭibbá*, vol. 1, p. 183. The same work of Galen also was translated into Arabic (al-Fihrist, pp. 289-290).

³ *Ibid.*, p. 184. A book of the same title by Rhuphos was translated into Arabic (al-Fihrist, p. 291).

⁴ In another book, *Kitábu'l-Tashríh* (*Tárikhu'l-Hukamá*, p. 38). Yūḥanná b. Māsawayh attempted to test and verify the Anatomical system of Galen. According to Ibn Abí Uṣaybi'a, he had the ambition to write a book on Anatomy, had kept monkeys to dissect when they were grown up, had received particular species of them from Mu'tasim and wrote a book on Anatomy which was admired by friends and foes alike (*Ṭab.*, vol. 1, p. 178). According to a story reported by Ibnu'l-Qifti, he wanted to dissect his own son in order to establish human anatomy but the Caliph stood in the way (pp. 390-391). But Ibnu'l-

(2) To the second class belong such works of these physicians as dealt with subjects which had not been treated by the ancient writers. The pharmacopœia of Sábúr b. Sahl, the book on piles by Abú Músá 'Isá, the book on the causes of sudden death by Qustá Ibn Lúqá, etc. may be included in this class.

Though a very large number of very able medical men were busy in serving the cause of Arabian medicine in different ways, yet there was an important work in connection with it—the systematisation of the different branches of this science—which did not receive any serious attention from these physicians. An able and energetic young man of Tabaristán, well-qualified in the healing art, and well-equipped for this work, felt its necessity and took it up. This was Abu Sahl 'Alí b. Rabban al-Tabarí, the author of the *Firdausu'l-Hikmat*, which has been edited by me and published by the Aftab Press of Berlin.

Nadím has not mentioned the *Kitábu'l-Tashrîḥ* in the list of Ibn Māsawayh's works, nor could we find any reference to this book in any extant medical work that we have read. The stories related by Ibn Abi Uṣaybi'a and Ibnu'l-Qiftí are not found in any of the Arabic histories.

Side-light on Ancient Indian Social Life.

By KALIPADA MITRA.

(The following pieces of information have been mainly derived from a Pāli Commentary known as the *Vimānavatthu-atthakathā*.)

THE CITY.

1. *Festivals*.—Here as well as in the *Jātakas*¹ we get constant references to Festivals (*nakkhatta kīḷam*). In *V.V.A.*, I. 15 (*Vimānavatthu-atthakathā*) we read ‘*Āth’ekadivasaṃ Rājagahe mahājanā “sattāhaṃ nakkhattaṃ kīḷatthā” ti ghosaṇaṃ karimsu*’.” A beautiful description of the city during the occasion is given there. ‘One day a festival (*nakkhattaṃ*) was announced in the city (*Rājagaha*). The citizens had the streets clean swept, sprinkled sand on them, and also five kinds of parched rice and flowers. At the door of every house *banana plants* and full pitchers were placed. According to their means they caused flags and streamers of many colours to flutter. All people attired themselves in their best robes and put on their braveries according to their means and joined the carnival. The whole city thus ornamented and decorated shone like a veritable celestial city.² Now king *Bimbisārā*, to please the great crowd, sallied out of his royal palace, with a great retinue, amidst magnificence and splendour and made a circuit of the city.’ The practice of kings going out in procession making a circuit of the city seems to have been in vogue as revealed in the *Jātaka* story.

In the introduction to the *Vātamigajataka* (No. 14) the parents missed very much their absent son when the festival was proclaimed at *Rājagaha* lamenting over a silver casket containing trinkets their son used to wear on other such occasions.

¹ *Jāt.* No. 46 (*Ārāmadūsaka*); 59 (*Bherivāda-Jāt.*, *nakkhatta at Benares*); 60; 365; 388 (*chanakāle*); 421 (*atha ekadivasaṃ nagare chaṇaṃ sajjayimsu*); 437 (*tadā Jambudīpe giraggasamajjasadisam mahantaṃ chaṇaṃ ghosayimsu*); 459 (*Sāmi, pubbe imasmim kāle Sura chaṇo nāma hoti*); 512 (*Kumbhājāt.*—*Sāvattthiyaṃ kira surāchaṇe ghuṭṭhe tā pañcasatā itthiyo sāmikānaṃ chanakīlāvasāne tikkhasuraṃ paṭiyādetvā ‘chaṇaṃ kilissāmā’ ti sabbāpi, etc.*).

² *Jāt.* No. 410 (*Susima*) ‘.....ekadivasaṃ nagaraṃ sajjāpetvā sakko devarājā viya alankato Erāvaṇapaṭibhāgassa mattavaravēraṇassa khande nisiditvā.....nagaraṃ padakkhiṇaṃ akāsi.

‘One day when the feast came round on the full moon of the fourth month and the city and the palace were adorned like the city of the gods.....’

It appears from *V.V.A.*, I. 15 that the festivals were for those people who could afford them, not having to work, the labourers preferring work to enjoyment. We read 'one day it was announced at Rājagaha that the festival was to last seven days. The treasurer asks his labourer, "*tvam kiṃ nakkhattaṃ kilissasi udāhu bhatim karissasi*" (would you join the festival or work ?) to which he replies, *sāmi, nakkhattaṃ nāma sadhanānaṃ hoti, mama pana gehe svātanaṃ yāgutaṇḍulāni natthi kiṃ me nakkhattena* (master, the festival indeed is for the wealthy ; in my house, on the other hand, there is neither gruel nor rice for to-morrow's consumption ; what have I to do with the festival ?)'. In the *Gaṅgamāla Jātaka* (No. 421), however, we find that a poor labourer who had earned half a penny (*aḍḍhamāsakaṇ*) by carrying water (*udakabhatim katvā*) supplemented his income by another half-penny received from a wretched woman, and with this magnificent sum they two together proposed to purchase garland, perfume and strong drink for the festival. Is not it therefore a question of taste rather than of means ?

The festivals were probably celebrated on the day of the full moon in conjunction with a certain *nakkhatta* and therefore indicating some auspicious moment (Sans. *kṣaṇaṃ*, Pāli *chaṇaṃ*) and thus known also as *chaṇaṃ*. On these occasions garlands, perfumes and strong drink (see foot-note 1) were freely indulged in. Magicians, jugglers, dancers, musicians (drummers, flute-players, conch-blowers), snake-charmers—all went there and contributed to their liveliness by displaying skill in their respective arts.¹

With the above may be compared the description of the town Kuṇḍapura on inauguration of the Tirthankar's birthday. *S.B.E.*, XXII, pp. 252, 253—Jacobi, *Kalpasūtra* :—

After the Bhavanapati, Vyantara, Jyotishka and Vaimanika gods had celebrated the feast of the inauguration of the Tirthankara's birthday, the Kshatriya Siddhartha called at the break of the day, together the town policemen and addressed them thus : (99)

'O beloved of the gods, quickly set free all prisoners in the town of Kuṇḍapura, increase measures and weights, give order that the whole town of Kuṇḍapura with its suburbs be sprinkled with water, swept, and smeared (with cowdung, etc.), that in triangular places, in places where three or four roads meet, in courtyards, in squares, and in thoroughfares, the centre of roads and paths along the shops be sprinkled, cleaned and

¹ 432 (so i.e. *Paṭalo the nato, ekasmin divaso bhariyam ādāya Bārāṇasim pavasitvā naccitvā gāyitvā dhanam labhītvā ussava pariyoṣāne bahum surābhataṃ gahā petvā. . . .*), see also *Jāt* No. 365 (*Ahigunḍika*), 489 (*Jadā Bhaṇḍu Kaṇṇā Paṇḍu Kaṇṇā nāma dve nātakā chekā. . . .*), 59 (*Bherivāda*), 60 (*Samkhadhamana*) ; cf. *Therī. g.* 53 (*Sujātā*).

swept; the platform be erected one above the other, that the town be decorated with variously coloured flags and banners and adorned with painted pavilions, that the walls bear impressions in gośīrṣa, red sandal and Dardara of the hand with outstretched fingers: that luck-foreboding vases be put on the floor and pots of the same kind be disposed round every door and arch; that big, round and long garlands, wreaths and festoons be hung low and high, that the town be furnished with offerings, etc., that players, dancers, rope-dancers, wrestlers, boxers, jesters, story-tellers, ballad singers, actors (*lasakū bhāṇḍa*), messengers (*āraksākāstalārā*, *ākhyāyakā vā*—*trans.* conjectural), pole dancers, fruit-mongers, bag-pipers, lute-players and many *Tālācāras* be present. Erect and order to erect thousand pillars and poles and report on the execution of my orders (100). (*Tālācāras* are those who by clapping the hand beat the time during a performance of music.) Numerous festivals besides the above seem to have been celebrated in ancient India as we notice them in Pāli literature, such as the Plowing festival,¹ *Sabbarattivāro* (or *Sabbarattivāro*), viz. all night festival at Vesali,² a sort of St. Valentine's Day,³ Elephant festival,⁴ *Kattikā* festival,⁵ Midsummer festival,⁶ *Sālākila* (which was done in the *Sāla* grove, *Shorea robusta*). It is needless to mention that the city was decorated like the city of gods, e.g. on the Parasol festival day of the king⁷ or like occasions.

A description of the *Sabbarattivāro* festival is given in the *Dhammapada-atthakathā*⁸ as follows:—

On the night of the full moon of the month of Kattika the entire city of Vesali was decked with flags and banners, making

¹ Jāt. No. 547 (Vessantara), 467 (Kāma).

² Samyutta Nikāya I. 9. 'Tena kho pana samayena Vesāhiyam sabbaratti cāro ('vāro) hoti. atha kho so bhikkhu Vesāhiyam turīya-tāḷita-vādita mghosa saddam sutvā. etc.

³ S.N., I, 4, 2 § 8. Tena kho pana samayena Pañca-sālāyam brāhmanagāme kumārakānam (kumārīkānam) pāhunakāni bhavanti: See also Book of the Kindred Sayings (P.T.S.) Pt. I by Mrs. Rhys Davids, p. 143, Foot-note: 'The festival was a kind of St. Valentine's Day. Clansmen's daughters arrayed in their best, held a parade, the youths having also fore-gathered, and presents, or at least flowers, were presented. Festival cakes were also handed round.'

⁴ Jāt. (455).

⁵ Jāt. 118; 147; 150; 276; 527—'Atha tassa nagare kattika chaṇaṃ ghoṣayimsu, kattika punṇamāya nagaraṃ sajjayimsu. Atha suriye atthamgate uggate punṇacande devanagare viya alamkate nagare sabba disāsu dipesu jālantesu rājā sabbālamkārapaṭimaṇḍito ājañña-rathavaragato amaccagana-parivuto mahantena yasena nagaram padakkhiṇaṃ karonto, etc.'

⁶ Warren: Buddhism in Translations, pp. 42, 43. (Thus the conception took place in the Midsummer festival.)

⁷ Jāt. 415—'Chatta-māṅgaladivase paṇ'assa sakalanagaraṃ devanagaram viya alamkarimsu.'

⁸ H.O.S., Vol. 30, p. 182.

it coterminous with the realms of the four great Kings and the festival began. As the festival continued through the night, he listened to the noise of the beating of drums and the striking of other musical instruments and the sound of flutes. When the 7,707 Princes of Vesali and a like number of young princes and Commanders-in-chief all dressed and adorned in festive array, entered the city for taking part in the festivities, he himself walked through his great cloister.

We get the description of a number of festivals in the Dhammapada Commentary.¹

(a) Public Day Festival.—Now in this city (Sāketa) there is a festival celebrated every year called Public Day and on this day families which do not ordinarily go out come forth from their houses with attendants and with their persons *unclothed*, go on foot to the bank of the river. Moreover, on this day sons of men of wealth and position of the warrior caste stand along the road, and when they see a beautiful maiden of equal birth with themselves, throw a garland of flowers over her head.

(b) The Simpleton's Holiday.²—we read of the instruction given by the Teacher at Jetavana with reference to Simpleton's holiday—(*Bāla nakkhatta*—Seven days' holiday). For on a certain date there was a festival celebrated in Sāvatti called Simpleton's Holiday and on the occasion of this festival foolish, unintelligent folk used to smear their bodies with ashes and cowdung and for a period of seven days go about uttering all manner of coarse talk. At this time people showed no respect for kinsfolk or friends or monks when they met them, but stood in the doorways and insulted them with coarse talk. Those who could not endure the coarse talk would pay the holiday makers half or a quarter of a penny according to their means and the holiday makers would take the money and depart from their houses.

On the occasion of these holidays the customary restraint was put off and even ladies of respectable families came out to witness the lively scenes. We read :—one day a festival was proclaimed in this city. Now at the festival daughters of respectable families, who do not ordinarily go out, go on foot with their retinue and bathe in the river. Accordingly on that day Sāmāvatī also accompanied by her 500 women went right through the palace court to bathe in the river. (She was Treasurer Ghosaka's daughter King Udena fell in love with her.)³

¹ *Dhpd. Commentary* 53 ; H.O.S., 29, p. 62.—Story of Viśākhā.

² *Dhpd. Cy.* Book 2, Story 4. *Dh.A.*—I, 256—H.O.S., 28, 310.

³ H.O.S., 28, p. 269 ; *Dh.A.*, I, 190-191.

(c) Cow-festival.¹—On that day, as it happened, one of the herdsman's cows had calved and the herdsman was about to hold the customary festival in honour of the event. The herdsman after providing the Private Buddha with food celebrated the cow-festival with an abundant supply of rice porridge.

2. *Fear of Thieves*.—It appears that there was some fear of thieves even in the capital city of Rājagaha and in daytime. A certain *Upāsaka* supplied four *bhikkhus* with daily food; but his door used to remain shut for fear of thieves, and sometimes it so happened that the *bhikkhus* had to go away without getting the appointed food. This is narrated in *V.V.A.*, V. 5 (*Dvārapālavimāna*): 'Tassa pana gehapariyante t̥hitaṃ corabhayena yebhuyyena pihitadvāraṃ eva hoti). Ultimately the *Upāsaka* had to post a *dvārapāla* (door-keeper) at the door. The same state of insecurity from thieves is corroborated by the *Jātakas*. The king had to take special care to put down the *Paccantavāsīnora* (frontier robbers); and the *Nagaraguttiko* (governor of the city) had acquired an important position in the state, having to free the city from thieves, burglars and house-breakers. Fick says 'Judging from the insecurity which on account of the frequent mention of robbers and thieves in the *Jātakas* and other folk-literature must have existed in the Indian cities in ancient times, he was no small personage'.²

3. *City Gates and outside Villages*.—The city gates were named after castes, because they faced caste villages outside. (See *V.V.A.*, II, 2—Bhagavati Bārāṇasiyaṃ viharante Kevatta-dvāraṃ nāma ekam dvāraṃ. Tassa avidure nivittaṃ gāmaṃ pi kevattihadvāraṃ tveva paññāyittha.) It is well-known that villages were assigned to particular castes, such as Brāhmaṇagāma (*V.V.A.*, I, 8: Kosalajanapade yena Thunaṃ nāma Brāhmaṇagāmo tad avasari) and Caṇḍālagāma (*V.V.A.*, II, 4: Rajagahe Caṇḍālagāme). Numerous references to such caste villages are to be found in the *Jātakas* and other Pāli literature.³

4. *The City Courtesan*.—In *V.V.A.*, I, 15, we read of the famous courtesan Sirimā of Rājagaha whose daily fee was of course the conventional sum of a thousand Kāhāpaṇas

¹ H.O.S., Vol. 28, p. 253. Dh.A., I, 171.

² Fick — *Die sociale Gliederung im Nordöstlichen Indien Zu Buddhas Zeit*. — Translation by Dr. S. K. Mahtta (1920, Cal. Univ.), p. 158.

³ Villages belonging to Brāhmaṇas—See Jāt., No. 354—Uruga-jāt.—Bārāṇasiya dvāragāmake brāhmaṇakule; No. 389 (Suvannakakkata) and 484 (Sālikedāra)—Sāhndiyam nāma brāhmaṇa gāmo...: 276 (Kurudhamma); 402 (Sattubhastā); MV.—V. 13, 12; D.N., III, 1, 1; V, 1; S.N., i. VII, 2, 1; I. V. 2, 8; to potters—No. 408 (Kumbhakāra-jāt.)—Bārāṇasī nagarassa dvāragāme kumbhakārakule; to carpenters—Vaddhaki, No. 407 (Phandana-jāt.), No. 156 (Alīnacitta); 283 (Vaddhaki-Sūkara), 466 (Samudda-Vāṇija); to smiths—387 (Suci); to caṇḍālas—474 (Amba-jāt.); 497 (Mātanga-jāt.); 498 (Citta-Sambhuta-jāt.); to fishermen—PVA, VII, 2; even to robbers—Jat. No. 503 (Sattigumba-jāt.).

See also Rhys Davids, *Buddhist India*.

(imasmim nagare Sirimā nāma gaṇikā hoti, devasikaṃ sahaṣṣaṃ gaṇhanti). She was the beautiful sister of Jīvaka, the court-physician of Bimbisāra and Ajātasattu. Hardy in his *Manual of Buddhism*, says Jīvaka was himself the son of a courtesan. Cunningham is inclined to identify Sirimā Devatā of the Barhut stūpa with Sirimā of this legend. He says (*Stupa of Barhut*, p. 22)—‘.....Sirimā Devatā may be simply Sri Māyā Devi, the mother of Sākya Muni or the auspicious mother goddess. But I have a suspicion that the figure may be intended for the celebrated beauty named Sirimā, the sister of the physician Jīvaka’. He quotes the legend of the Burmese Buddha, p. 234¹ which entirely agrees with the tale given in *V.V.A.*

She made daily provision for feeding eight *bhikkhus* in her house by ticket (Saṃghassa attha salāka bhattāni patthapesi).² She, however, fell ill and died soon after. The Buddha in order to show the ghastly state to which even a beautiful body is reduced, and thus wean a bhikkhu from his attachment to flesh asked the king of Rājagaha to allow her corpse to putrefy in the charnel vault and develop maggots, taking care that it was not eaten away by carrion-birds.³ Then a truly typical Buddhist scene was unfolded to the vision—frightfully shocking in its hideousness! The stinking, swollen, maggot-riddled anatomy of poor Sirimā was put up to auction, but no, not one, not even the love-lorn bhikkhu, would bid for it!

The courtesan was one of the eleven persons in the court of the King⁴ and found her place in the palace.⁵ Kauṭilya says: ‘The superintendent of prostitutes shall employ (at the King’s court) on a salary of 1,000 panas (per annum) a prostitute (*gaṇikā*)....noted for her beauty, youth and accomplishment (*Silpasampannām*).’⁶ In the description of the court of the King we notice the dancing girls in attendance along with ministers, brahmins, and householders.⁷

She used to receive honour from the King who, if he thought

¹ See also the ‘*Life and Legend of Gaudama*’ by the Rev. Bigandet, 1880, Vol. 1, pp. 246–248.

² For the distribution of food by tickets see *Taṇḍula-Nāli*, Jāt. No. 5 (distribution of rice), *Mahāsutasoma*, 259 (distribution of milk) and *Sāma*, 540—distribution of gruel).

A bhikkhu on returning from her house was pining away in his cell on account of love for her.

³ ‘Rājā satthu sāsanam pesesi: bhante Jivakassa kaṇiṭṭhā bhagmi Sirimā kālaṃ akāsi. Satthā taṃ sutvā raṇṇo sāsanam pahini: ‘Sirimāya sarirajhāpanakiccaṃ natthi, amāka susāne taṃ yathā kākādayo na khādanti tathā nipajjāpetvā rakkhāpetha.....’

⁴ Jāt. No. 276 (Kurudhamma).

⁵ Jāt. No. 545 (Vidhūra Paṇḍita).

⁶ Kauṭilya—*Arthashastra* trans. by Dr. R. Shamasastri, page 153.

⁷ Jāt. 415—ekato alaṃkato devacharāsāṅghā viya solasa sahaṣṣa saṃkhā nāṭaki-gaṇā.

fit, might degrade her from her position.¹ A courtesan could keep her honour, one such having taken a thousand pieces from a man, waited for him for three years, but as he did not return and she was reduced to straits, she got licence from the chief-justice to ply her trade again.²

Kautilya says, 'Prostitutes shall do the duty of bath-room servants, shampooers, bed-room servants, washerwomen, flower-garland makers and present to the King water, scents, fragrant powders, dress, and garlands, etc. This indicates their serviceableness to the King.³

In Benares courtesan Sāmā's fee was a thousand pieces (*sahassam gaṇhanti*). She was exceedingly beautiful (*atīvīṇya sobhagapattā*) and a favourite of the king's.⁴ Sūlasā, beautifier of Benares (*nagara sobhinī*), charged likewise a fee of thousand pieces (*sahassena rattim gaṇhati*).⁵ Courtesans were regarded as sources of revenue by the King and Hardy (*Manual of Buddhism*) relates that Bimbisāra fearing a loss of revenue became jealous of a Vesāliyan courtesan who was attracting his citizens and brought one to Rājagaha to match her.⁶

Ambapālī entertained the Buddha and his disciples with food and presented to him her garden. She entered the Saṃgha, became a Therī and we have in the *Therī gāthā* a beautiful composition ascribed to her. The *gaṇikās* made gifts in support of religion. They remind us of the Greek Hetaira (or hetaera) who were equally rich and liberal. Vātsyāyana in his *Kāmasūtra* (A.D. 250) divides the courtesans into nine classes, assigning the first place to the *gaṇikās* whose association was prized by the King and his nobles alike, and by other distinguished personages. In *Mṛcchakaṭika* Brāhman Ārudatta marries the exquisite Vasantasenā. Dandin refers in his *Daśakumara-carita* to the education of the courtesan, which includes learning of the several arts such as singing, dancing, acting, playing on musical instruments, painting, making perfumes, making artificial flowers, conversational grace; moreover, logic, grammar, and elementary philosophy. They excelled in many a game. Naturally the company of such girls as were dowered with youth and beauty, accomplished in the fine arts, well-dressed, graceful, charming, eloquent and sweet-tongued, was eagerly sought. Not unoften do we see the King played in combination with such girls practical jokes on the ingenuous. We read in the *Kathākośa* that Vasantatilakā was the dear friend of

¹ Jāt. No. 522 (Sarbhanga jātaṅka).

² Jāt. No. 276.

³ *Op. cit.*, p. 49.

⁴ Jāt. No. 318 (Kānavera).

⁵ Jāt. No. 419.

⁶ See Hardy, p. 237. Bimbisāra hearing of the fame of Ambapālī, the Vesāliyan courtesan, became envious of the glory that by her means flowed to the Licchavi princes and made Sālāvātī Kumārī the principal courtesan of Rājagaha. See also *M. P.* VIII, 1, 2, 3.—atha kho Rājagāhaka negamo Sālāvātīm kumārīm gaṇikam vutthāpesi.

Princess Ratnamañjarī and had free access to the royal harem. *Gaṇikā* Māgadhiḥ promised the King that she would bring the Sannyāsi Kulavālaka before his royal presence. She artfully spread the net of her charms and succeeded in inveigling the luckless *religieur*. Rājā Konika had his object realized—Vaisālī was won. There is a considerable later literature regarding the courtesans, such as Dāmodargupta's *Kuṭṭanī-mataṃ*, Kalyānamalla's *Anaṅgaraṅga*, Kṣemendra's *Samaya-mat-rikā*, etc. Want of space forbids further treatment of the subject.

A courtesan could be hard-hearted and greedy. In the *Aṭṭhāna Jāt*.¹ we read of a Setṭhi's son who for having failed to bring to the courtesan a thousand pieces at the appointed time was caught by the neck and cast out, the door being shut against his face, notwithstanding his previous favours to the girl. In the *Takkāriya Jāt*.² Kālī, the courtesan, stripped a rich merchant's son of his clothes and threw him out naked in the street. There seems to have been a practice with prostitutes (some at least) to expose their male children in the cemetery to die there.³

But she could as well be virtuous and keep the Five Precepts.⁴ The example of the celebrated courtesan Ambapālī of Vesali may be cited. Her devotedness to the Buddha and her charity to his order need not be repeated here. Sirimā's provision of food for the bhikkhus after change came over her is quite intelligible.

5. *Some Domestic Scenes*.—(a) A wife paid a heavy daily fee to Sirimā, the courtesan of Rājagaha, and brought her to her husband in his house as her substitute for half a month, so that she might be free to attend to her own religious duties (puñña kamma). Her father gave her the requisite sum to pay to the courtesan. (*V.V.A.*, I, 15, p. 67.)

(b) A refreshing instance of self-sacrifice on the part of a sterile wife asking her husband to marry her sister to keep up the family is recorded in *V.V.A.*, III, 6. (.) Tāsu Bhaddā pati-kulamgatā saddhāsampannā buddhisampannā vañjhā ca. Sā sāmikam āha: mama kanitthā Subhaddānāma atthi, tam ānehi. sac assā putto bhaveyya, sa mamo pi putto siyā, ayañca kulavamso na naseyyā ti. So sādhu ti sampaticchitvā tathā akāsi). In the *Petavatthu-atthakathā* similarly a sterile wife asks her husband to wed another wife, but when the latter is with child she hires a Paribbājaka to cause her abortion.⁵

¹ Jāt. No. 425.

² Jāt. No. 481.

³ *P.V.A.*, VII, 5 (Kumārapetavatthu)—'sā ca nam jātamattam eva dārako ti natvā susāne chaddāposi, *M.V.*, VIII, 1. 4. (Sālavatī ganikāputtam vijñāyīdāsiṃ ānāpesi: imam dārakam samkārakute chaddhīti) and Buddhaghosa's *Dhammapada* commentary by Burlingame (*Proc. of American Academy*, p. 510) when the child was born and the harlot learnt it was a boy, she had him cast away on a dust heap.

⁴ Jāt. 276.

⁵ *P.V.A.*, I, 6: - 'Ath'assa bhariyā tam pavuttiṃ sutvā sāmikam evam āha: "Sāmi aham vañjhā, aññā kaññā ānetabbā, mā te kulavamso

(c) Cruel treatment of wife by the mother-in-law is not an unfamiliar scene. Often such treatment turned fatal, the offence of the girl on most occasions being nothing but trivial, such as the offering of sugar-cane juice or a cake or some such food to a *bhikkhu*. In *V.V.A.*, III, she strikes the daughter-in-law with a *musala* (club) which broke her shoulder joint and killed her (*taṭataṭāyamānā kodhābhībhūtā—yuttāyuttam acintenti amsakūṭe pahari*) ; elsewhere she kills her by throwing a wooden seat at her (*sassuyā ca pīṭhakena pahatā taṃ khanaññeva matā*), or a stone (*IV, 10 ; kevalam tattha sassū sunhisam pīṭhakena paharivā māresi. Idhapana leḍḍunāti ayam eva viseso*). The story of Kirtisenā in the *Kathāsarisāgara* (*Nirṇayasāgara* ed., p. 130) may be compared. The mother-in-law caused the wife to be beaten by her female slave (*pādair nakhaiśca*)—‘*Kaṣṭā hi kuṭilas’vas’ruparatantravadhū sthitiḥ.*’

Mild punishment was indeed enjoined by Kauṭilya for women of refractory nature and they could even be struck with bamboo bark or with palm of the hand, but this could not be exceeded.¹

(d) Wife’s treatment of mother-in-law.—Wives often used to treat their mother-in-law with great harshness, for we see in *V.V.A.*, VIII, 1, a *Upāsaka* desiring to nourish old worn out parents by himself, prefers not to marry on the ground that a wife in her husband’s house lords it over and shows scant respect to her parents-in-law (*.....itthiyo nāma patikūle thitā issariyaṃ karonti, sassusasurānaṃ manāpacāriniyo dullabhā ti mātā pitunnaṃ cittadukkhaṃ pariharanta dāra-pariggahaṃ akatvā*, etc.).

The *Jātakas* are redolent of such examples. *Kaccāni* was so annoyed with the bad treatment of her daughter-in-law that she in her desperation was making a death offering (*bahutamajja*) to Right, for thought she, Right must surely be dead in the world.² Elsewhere the wife tries to throw her mother-in-law in the crocodile river to be devoured by crocodiles or to burn her alive in the cemetery while she was asleep, bed and all.³ The daughter-in-law tries all artful ways to get her husband displeased with his father, and teases the old man to her heart’s content ; but the son is dutiful and does not yield.⁴ A magnate of *Sāvattthi* was actually barred out by his daughters-in-law ; his sons were of course clodpates.⁵

upachijjīti.....ayam puttam labhitvā massa gehassa issarā bhavissati ti issā pākātā tassā gabbhapātānupāyaṃ pariyesanti, etc.’

¹ *Kauṭilyaṃ Arthaśāstraṃ* (Dr. R. Shāmsastri)— p. 155 : ‘*veṇudalarajju hastānāmanyatamena vā prishthe trirāghātaḥ.*’

² *Jāt.* 417.

³ *Jāt.* 432 cf. the mother-in-law’s lament ‘*Yam ānayim somenassam māliniṃ candanussadaṃ sā mam gharā niccubhati, jātaṃ sarapato bhayaṃ.*’

⁴ *Jāt.* 446.

⁵ *The Book of Kindred Sayings*, I, p. 222.

Even a wife who has two good sons loses her balance and contemptuously treats her husband, who retaliates by, of course, marrying another wife.¹

The above only indicates the aberrations from the normal life led by a dutiful wife kind to her parents-in-law, and indeed to all in her husband's home (Sassu-devā patibbatā). Learned and accomplished girls are found in the Latāvimāna (V.V.A., III, 4) doing what was pleasing to her husband, her parents-in-law and to the whole family (upāsakassa dhitā Latā nāma paṇḍitā vyattā medhāvinī patikulam gatā, Bhattusassu-sasurānañca manāpacārinīpiyavādinīparijanassa saṅgahakusalā). The Therīgathā is a noble composition of learned women.

6. *Social Institutions, etc.*—(a) Marriage. Marriage with maternal uncle's daughter seems to have been favoured (V.V.A., V, 2: Ath'assa mātāpitāro sammukha gehato mātuladhītarāṇi Revatīm nāma kaññaṃ ānetukāmā ahesum). Elsewhere in Pāli Literature this custom is met with, e.g. in the Petavatthu atṭhakathā² and in the Jātakas.³ But A. M. Hocart in his article entitled 'Buddha and Devadatta' in the *Indian Antiquary* (October 1923, p. 26) says 'Spence Hardy in his *Manual of Buddhism*, p. 140, relates how the thirty-two sons of Rāma of the Koli tribe married their mother's brother's daughters of the Sakya tribe,' and explains this cross-cousin system by giving a pedigree. He observes 'This mode of reckoning kin (i.e. in which the maternal uncle is the same as the father-in-law, the paternal aunt as the mother-in-law and so forth) is found in typical form among the Tamils, the Todas and other people of South India, among the Sinhalese, ancient and modern, the Torres Straits Islanders, the new Hebrideans and in Fiji—.....all these systems have a common origin. He is disposed to think that "Similar customs once prevailed in Northern India as they do now in the Pacific".'

To a present day Hindu of Northern India such marriage is forbidden, being within prohibited degrees. This pales before incestuous marriages referred to in the Jātakās where a brother marries his step-sister, viz. daughter of his step-mother⁴; he

¹ P.V.A., I, 7: 'Tesaṃ mātā puttavasena bhattāraṃ atinaññati, so bhāriyāya avamānito nibbindamānaso aññaṃ kaññaṃ ānesi....'

² P.V.A., I, 4 (Nāga-peta): 'Tesaṃ dhītarāṃ dārikāṃ mātula puttassa atthāye nātakā vāresum.....taṃ mātā attano mātula dhitāyadārikāya palobhethi.'

³ Jāt. 446 (Takkala)—.....Tasmim kāle putto pitaraṃ āha, 'Tāta mama mātā etakena na bujjhati, tumhe mama mātu maṃkubhāva karaṇatthaṃ "asukagāme mama mātuladhītā atthi.....taṃ ānessāmi" mālāgandhādīni ādāya.....āgacchattha. Paṭivassaka kule itthiyo "Sanniko kira te aññaṃ bhāriyaṃ ānetum asukagāmaṃ gato'ti tassā ñeikkhimsu".'

⁴ Jāt. 458 (Udaya) where Udayabhadda marries Udayabhaddā (Vemātikabhaginīm Udayabhaddakumārīm aggamaheṣim katvā Bodhi sattam rajje abhisiñcimsu).

even goes a step farther and marries a sister born of the same parents.¹

There is one consideration which seems to justify such a union, and that is the preservation of the purity of blood. From the *Ambattha sūta* of the *Digha Nikāya* it appears that the sons of Okkāko who lived in exile in the *Himālayas* married their own sisters for fear of degradation of blood.²

None the less this custom of the *Sākya*s was regarded with reproach even by their contemporaries. They never escaped revile hurled at them by the *Koliya*s, whenever the two clans had an occasion of quarrel.

Marriage between brother and sister and their coronation together is familiar to the student of old Egyptian history. It was customary in all ranks of society for a youth to marry his sisters.³ The practice seems to have its origin amongst the *Magi*. Preservation of the purity of blood may likewise have suggested it. Amongst many savage tribes this is only normal.⁴

(b) Treatment of slaves. Sometimes slave girls were treated most inhumanly by the *Vadhū* of the house as we find in *Rajjumaḷā Vimāna*. The unfortunate maid-servant was abused right and left, and when she grew up, had a liberal allowance of slaps and fisticuffs meted out to her. She was taken by the hair and molested with hands and feet. She invented a device,—went to the barber and had herself shaven. But it availed not. Her tonsured poll set the mistress ablaze. 'What think you', said she, 'you would escape with a shave?' Then she bound her head with a rope, and pulled it down with

¹ *Jat.* 461 (*Dasaratha*). *Tassa*. *aggamahesī* *dvo putte ckañca dhītaraṃ vijāyī, jettha putto Rāma paṇḍito nāma ahoṣi, dutiyo Lakkhaṇa kumāro nāma, dhītā Sītā devī nāma*. *Tassa Rāmassa āgata-bhāvaṃ ūtatvā kumārā amaccaparivutā uyyānaṃ gantvā Sītāṃ aggamahesū katvā ubhinnaṃ pi abhisekaṃ karimsu.*

² *D.N.*, iii, l. 15, p. 92. *Ambattha sūta*—'Te raṭṭhasinā pabbajjivā yattha Himavanta tassa pokkharaniyā tīre maha sāka—sando tattha vāsaṃ kappesum. Te jāti-sambheda-bhayā sakāhi bhaginihi saddhiṃ saṃvāsaṃ kappesum.' *Buddhaghosa's Parables*. (tr. Rogers) Ch. XXVI, p. 177 (the four princes married each one, one of their younger sisters), and p. 178 (their 32 royal sons married the daughters of their maternal uncles in the country of *Kapilavatthu*). See also *Kuṇāla Jāt.* 536 *Koliyakammakarā vadanti 'tunhe Kapilavatthuvāsiko gahetvā gaccatha, ye sonasigālūdaya viya attano bhaginihi saddhiṃ vasiṃsu*. ' See also *Hardy Manual*, pp. 134–140.

³ *Breasted—History of Egypt* (1916), p. 85.

⁴ *Forel, August, M.D., Ph.D., LL.D.—The Sexual Question*, p. 164. 'Sexual connection between parents and children as well as between brothers and sisters, is however common amongst certain tribes. Many other races allow marriage between brothers and sisters, but this is elsewhere generally condemned.

Among the *Weddas* marriage between an elder brother and his younger sister is considered normal. unions between brothers and sisters, especially between half-brothers and half-sisters were licit among the *Persians*, *Egyptians*, *Syrians*, *Athenians* and ancient *Jews*.'

a wrench whenever it pleased her fancy. The unfortunate maid thus gained her sobriquet 'Rajjumālā'. So weary became she of her wretched life that she thought of deliverance from it by committing suicide in the jungle, which was happily averted. Perhaps this was the ordinary lot of slaves as insinuated in Sakka's talk with a *dāsī*¹ whose master's son died, but who would not yet weep. 'You must be rejoicing', said Sakka, 'he is dead now, who when living molested you (Nūna tvam iminā pīletvā bādhētvā parituttā bhavissasi, tasmā "sumatayan" ti no rodasiti)'. In the same Jātaka, however, it is found that they lived in amity (te samaggā sammodamānā piyasamvāsā ahesum). The same bad treatment of *dāsīs* occurs in *P.V.A.*, I, 12.²

In *P.V.A.*, IV, 12 we read of a *dāsī* who was raised to the status of the wife of the son of the master.³

It does not appear however that notwithstanding these exceptions, the lot of the slaves was in any way cheering. Their extremely despicable position is sufficiently attested by the word 'dāsiputra', used in Pāli and Sanskrit literature alike as a term of vile abuse.

In the *Nāgavimāna* (*V.V.A.*, V, 12) we read that the guard of a sugarcane field (*ucchupālaka*) in the employ of a brahmin was clubbed to death by his master for having improvised a hut to accommodate some bhikkhus (Tam sutvā brāhmaṇo kupito anattamans tatātātāyamāno kodhābhībhuto tassa piṭṭhito upadhāvitva muggarena taṃ paharanto ekappahāren 'eva jīvita voropesi).

We meet with a labourer (*Kammakara*) who served others by *bhātī* but who lived in his own house with his wife and daughter in a free manner, e.g. Puṇṇo who served a Rājagaha Setṭhi (*V.V.A.*, I, 15). We see also *bhattavetana bhaṭo* who was a mere hireling working for food.

Four kinds of slaves are mentioned in *Jātaka* No. 545: Some are slaves from their mothers, others are slaves bought for money, some of their own will, and others driven by fear. For detailed description see *Manu* VIII, 415, where seven kinds are mentioned and *Kautiliya Arthaśāstra*, *Dāsa*, and *Kammakāra Kalpas*.

7. *Events of Daily Life*.—(a) Wives used to carry food to their husbands working in the field at or before noon (*V.V.A.*, I, 15). This is also found in the *Jātakas*.⁴

¹ Jāt. 354 (Uraga).

² *P.V.A.*, I, 12. (Uragapetavatthu) 'Yadi evaṃ tena taṃ poṭhetvā veyyavaccakāritā bhavissasi, tasmā maññe, sumuttāham tena matenāti na rodasī ti.' She of course denies it.

³ *Ambapetavatthuvannanā*:—Sandiṭṭhikam eva passatha dānassa damassa sanyamassa vipākaṃ dāsī ahaṃ ayyakulesu hutvā sumisā homi āgarassa issarā.

⁴ Jāt. No. 354.

(b) A Hindu girl of the present day when preparing a seat for food offered at a particular place would scrupulously cleanse it douching the surface with water. A similar practice seems to have obtained in ancient days (*V.V.A.*, II, 10 : *Sitta samattha padese āsanam paññāpetvā*). One desiring greater purity would smear it with fresh cowdung. In the *Revatī Vimāna*, Revatī's mother-in-law asks her to smear the place where the bhikkhus sit with fresh cowdung (*Tassa mātā Revatīm āha ; amma tvam imam geham āgantvā bhikkhu saṅghassa nāśidanatthānam karitena gomayena upalimpitvā āsanam paññāpehi*). The *Jātaka* also mentions it.¹

The antique custom of smearing places with fresh cowdung diluted with water is widely practised even now in villages (in Bengal at least) where mostly mud huts are to be found. The solution is considered purificatory and the floor and the yard are every morning regularly washed with it, sometimes made thick with earth. A house becomes defiled (*asouch*) when a man dies, and it is ceremonially purified by the sprinkling of cowdung water all round the house as a sort of lustration after the corpse is removed from it. Places where boiled rice, etc. is eaten become impure and are purified by cowdung water. On all auspicious occasions in Bengal, such as the worship of goddess Lakshmī or the performance of numerous vratas, birth, upavīta or marriage the assigned places are carefully rubbed over with a thick solution of it and then when the places dry up, a beautiful *ālīpanā* is painted thereon with a semi-thick solution of pounded rice. This practice is not confined to Bengal only, it is widely prevalent in the Deccan and South India. During a hurried journey in October 1922, I noticed this *ālīpanā* painting, of good, bad and indifferent designs at Hyderabad, Madras, Tanjore, Trichinopoly, and Rameshwaram.

Incidentally I may be allowed to mention that cowdung was an important ingredient of varied usefulness. In the *Dalhadhamma Jāt.*² allusion is made to it as having been used by a potter in baking clay. That it was used as fuel in the shape of cakes in ancient days as in modern is clear from such words as *gomayaggi*,³ *gohanubbethanena*.⁴ Apart from this plebeian use it was used more honourably. e.g. (1) in the treatment of impure gold.⁵ (2) treatment of materials for musical

¹ *Jāt.* No. 446. *Sāpi kho anācārā 'nikkhaṇṭhā no gehā kālakaṇṇi-ti' haṭṭatutthā allagomayena puñcitvā*, etc.

² *Jāt.* No. 409.

³ *Nettipakaraṇam*, p. 23 : literally, fire of cowdungs.

⁴ *Jāt.* No. 547, Rouse (translator) says 'I take this to refer to patties of cowdung used as fuel'.

⁵ *Kaut. Artha*, p. 86, *sīsānvyayena bhidyamānam śuskha paṭalairdhmāpayet*, *rukshatvād bhidyamānam taila gomaye nishecayet*; both dry cowdung and another mixed with oil were used.

instruments,¹ (3) in the preparation of the first layer of composition for fresco paintings,² etc.

8. *Teachers' Fee*.—Here also, as in the Jātakas, we see that a fee had to be paid to the teacher for learning lessons from him. (Cattamānavaka goes to his Brahmin guru Pokkharasāti and learns from him *mante* (instead of the Vedas) and *Vijjattāhānāni* (i.e. the eighteen branches of knowledge). Then he asks his *guru* what he should pay to him as *gurudakkhinā*. The guru says: 'The pupil should pay according to his means: bring me a thousand Kāhāpaṇas (*V.V.A.*, V, 3: Ācāriyo: 'gurudakkhinā nāmā antevāsikassa vibhavānurūpa, kāhāpaṇasahassaṃ ānehi'). Evidently this fee is paid at the end of the study and not at the commencement which is known as the *ācāriya bhāga*.³ In the (uttalavimāna, we read that (uttala taught his pupil without keeping anything back, i.e. without closing his fist (ācāramutthim akatvā anavasesato sikkhaṃ sikkhāpesi). Elsewhere he says: 'We artists do not teach art without fee' ('Mayaṃ sippupajjivino vetanena vinā sippaṃ na dassema') though on this occasion the fee he demands is that the devatās should recount the good deeds they had done before.

9. *The practice of bringing out the dying into the open*.—This practice, still prevalent in Bengal, is noticed in *V.V.A.*, VII, 9 (Brāhmano 'putte abbhantare mate niharanaṃ dukkhanti puttam bahidvāra kothhake nipajjāpesi'). But see—Buddhaghosa's parables, p. 13, the same story:—'The Thuthe, then fearing all his relatives and friends might get a sight of his wealth—had the boy carried into one of the outer rooms of the house.' Also Burlingame *op. cit.*—p. 488.

10. *Popular way of expression of joy*.—This is by making acclamation accompanied by the waving of clothes (ukkuṭthisadde celukkhepe ca, *V.V.A.*, pp. 132, 140, 141) is very frequent in the Jātakas also. Another way of expressing joy was by the snapping of fingers in combination with the waving of clothes.⁴ The modern way of clapping hands to express joy or approbation is also noticed.⁵

11. *Arts and Crafts*.—(a) In Tiladakkhināvimāna a certain woman washed the sesame grains and dried them in the sun for the sole purpose of getting oil therefrom—(...tile dhovitā ātape sukkhāpeti kevalam tilatelam pātukāmā, *V.V.A.*,

¹ See Bharata: *Nāṭyaśāstra* (Kāvya-māla): Ch. XXXIV, Sl. 221 (baddhaṃ sulalitair dāntair gomair atimarditaiḥ); and 229.

² In Ajanta cave paintings the first layer was prepared of a mixture of clay, cowdung, and pulverized traprock applied to wall and thoroughly pressed into its surface. Smith, *History of Fine Art in India and Ceylon*—Chapter on Ajanta.

³ Cf. Jāt. 252 (Tilamutthi).

⁴ Sūci—Jāt. (381)—'Ānguliyo poṭhesi, celukkhepe pavattimṣu'.

⁵ Jāt. No. 545 (Cambridge Translation, Vol. VI, p. 139).

page 54). This shows a crude way of getting oil from sesame seeds.

(b) The art of building (*vastu vidyā*) had reached perfection. In the Suruci-Jātaka¹ the King summons Vatthuvijjācariye (masters in the art) for building a house for his son. Besides other references,² it will be enough if we say that the Mahā Urmagga Jātaka³ is a convincing commentary on the excellence of the art.

In V.V.A., 16 'Sumāpite' means 'Mahāgovindapaṇḍitena Vatthuvijjāvidhinā sammadeva nivesite'.⁴

In V.V.A. an elaborate description for the construction of a Vihāra is given (.....suvibhatta bhatti thambha tulāgopānāsī kaṇṇikā dvāra bāhā vātapāna sopānādi gehāvayaṇaṃ manoharaṃ suvikappitaṃ kaṭṭhakammaramaṇiyaṃ suparikammakataṃ sudhākammamanuññaṃ suviracitamālākamma-latākammādicittaṃ superiniṭṭhita manikuttimasadisabhūmitaṃ devavimānasadisam heṭṭhā bhūmiyaṃ pañcagabbhasatāni uparibhūmiyaṃ pañcagabbhasatāni, etc.) wood work, brick work, cement work, reliefs, fresco paintings, ornamentation with wreaths (mālākamma), creepers (latā kamma), etc. were well-known. In subsequent times this art with sister arts was well attended to.

(c) An interesting horticultural artifice to quicken mango trees to fructify out of season is recorded in V.V.A., VI, 3 in the Phaladāyavimāna. 'In that season which was not for mangoes King Bimbisāra felt a longing to eat them. He commanded the gardener, "Look here, I want to eat mangoes, bring me some". "Lord", says the other, "there are no mangoes in the trees just now; if your Majesty waits a little. I will so arrange that in a short time trees will bear fruit", "well, do it then". The gardener came to the garden, removed the old earth from round the roots and threw such earth there and watered in such a way that the trees put forth thick leaves. He then removed this earth. Then he mixed the original earth with certain ingredients (pharuka-kasāṭa-missakaṃ, the meaning of which Hardy does not know), when the tree began to flower and ultimately bore fruits.' The art of getting fruits gathered out of season seems to have been well known.⁵

¹ Jāt. No. 489.

² All references to the subject will be found in Rhys Davids' Buddhist India, pp. 66-74. Kutikārasikkhāpādam referred to in Jāt. 323 and 403.

³ Jāt. No. 546.

⁴ The Mayamatam is an ancient, important and comprehensive book on architecture. Some other important books on the subject, viz. Vāstūvidyā, viz. Śilpa Śāstra and Manuśyālayachandrikā have been published in the Trivandrum Sanskrit Series.

⁵ Amba Jātaka (No. 474): 'Tadā Bodhisatta tasmim gāme pativasatī pandito vyatto, akāle phalam gaṇhāpanamantaṃ jānāti'. As it could not have been a magic, some process doubtless was known. See also Dadhivāhana Jāt. (186). 'The new-comer managed to make the park

12. *Ornament, Dress, and Toilette, etc.*—Mention is made of ornaments in the *V.V.A.* In III, 8, we see that Mallikā was attired in a yellow robe (pītavatthe) and a yellow uttariya (outer garment). She wore yellow coloured ornaments (pītālañ-kārabhūsite), viz. an armlet (Kambu parihaṛakanti ca haṭṭhā-lañkāraṇiṣeso), and a bracelet (*Kāyura*, *Keyura*) on the arm.¹ She had a golden *Vēla* (wrapper). Her body was covered with a thin net of gold wire.² She wore many wreaths of gems (round her neck),³ 'nānā ratanamālīni, and the commentator explains: 'nakkhattamālāya viya kālapakkharattiyam, etc.' Now Kauṭilya mentions a *mālā* of pearls having twenty-seven strings called nakshatra-mālā (saptaviṃśati nakshatra mālā).⁴ Was she wearing such a *mālā*? She wore many-jewelled wreaths on the tuft of her hair⁵ (perhaps braided into knot) such as made of gold, *padumarāga*, *masāragalla*, *lohitañka*, etc. (*Commy*. Imā vata kesahatthe ratanamālā). Nets made of gold and beryl for covering the body were made (sarirappamānena katam suvaṇṇamayam jālam, . . . veluriya maṇimayena jālena . . .). We hear of many-jewelled ornaments for the head and for limbs adjoining the head and the neck (sisāditthānesu pi sisūpaga givūpagādi ābharāṇa vasena nānāvidhehi maṇihi ca suvaṇṇena ca cittitam), and those for adorning dangling pig tails (kesa venisu pīlandhanāni). To wear wreaths in the hair or round the head was a common practice (rattamālā dihi missitā kesavattiyo, *V.V.A.*, p. 280). There were wreaths with pearls set between. Jewelled earrings (Vatamsakā,—ratanamayā kaṇṇikā)⁶ were worn. Vatamsaka was worn by males also as we find in Mañjettha Vimāna that a Kuladāsī (maid-servant) made earrings of sāla flowers (*Shorea Robusta*) as an offering to the Buddha. We get *purisassa vatamsaka* (a man's earring) in *Nettipakaraṇa* (Ed. Hardy, p. 138). It is

look more beautiful by forcing flowers and fruit out of their season. Trees were fed with sweet water, scented water.' Vol. II, *Jāt. Trans.*, pp. 72 and 73.

¹ Cf. Bharat; *Ibid.*, Chapter 21 on Ahāryābhīnayaṃ : caturvidhaṃ tu vijñeyam dehasyābharāṇam vudhai | āvedhyaṃ bandhaniyam ca kṣhepyamāropyakam tathā

Keyūravāṅgade caiva kūparoparibhūṣaṇam.

² Mañijālānuvandhañca bhavetprsthāvibhūṣaṇam.

³ Trisaraścaiva hāraśca grīvā vakshōja bhūṣaṇam | nānā ratna krtāścaiva hāra vakshovibhūṣaṇam || Mukṭavali harṣhakañca sasūtām kaṇṭhabhūṣaṇam.

⁴ Kauṭilya Artha. (Sanskrit Ed.), p. 76. 27 stars are of course famous.

⁵ Bharat; *Ibid.*, Ch. 31, Sl. 20.

⁶ Vatamsaka is Sans. avatamsa (avatamsa kaṇṭhabhūṣhā) worn by females, as in the following sloka (No. 286, *Kāvya Prakāśa*). Asyāḥ kaṇṭāvataṃsena jitaṃ sarvaṃ vibhūṣaṇam tathaiva śobhate 'tyartham asyāḥ śravaṇakūṇḍalam.

Cf. Bharat; *Ibid.*, Ch. 21, Sl. 22: Kaṇikā kaṇṭa valayaṃ tathā syāt patra kaṇṭikena.

also mentioned as one of the many ornaments of the favourite elephant of Prince Vessantara.¹

Males wore *Kuṇḍala* in the ear (*Kuṇḍalehi alaṅkatakappaṇo* in *Kuṇḍali Vimāna V.V.A.*, VI, 8). In *V.V.A.*, III, 7 *Pesavatī* took off a small golden ornament from her neck and offered it to a goldsmith so that he might give her a golden brick to be used in constructing a *cetiya*. Ornaments for the hand such as rings (*aṅguliyaḍiḥatthābharāṇo*) are referred to.² There were ornaments for the hand and feet (*hatthesu pādesu*). Clothes interwoven with gold wire (*Kanaka cirakādi*) were used. Flowers were used as ornaments. For repertory of ornaments, see *Bharata Nat.*, Ch. 21.³ No mention of nose ornament is found in the *V.V.A.*

The above description compares favourably with the note on ornaments given by Cunningham⁴: 'The two sexes have in common earrings and necklaces, as well as armlets and bracelets, and embroidered belts. The women alone used forehead ornaments (*lalāṭikā*), long collars, garlands, zones or girdles and anklets. There are no nose rings.'

A similar testimony is borne by Griffiths.... 'The nose ring nowhere appears and there are no toe rings, but earrings, necklaces, armlets, bracelets, anklets and finger rings adorn both men and women.... Beaten wire, twisted wire, and filigrair⁵ seem also to have been common and were skilfully combined with stones'.⁶

It seems that toilette had attained a high level. The income of a whole village was given to his daughter by *Mahākosala*, King of Kosala, as her bath money⁷ when she was given in marriage to *Bimbisāra*. Ointments, and unguents of various kinds, such as of *aguru* (*aggulu*), *candana* (*sandal*), *piyaṅgu* (*saffron*) are mentioned (*aggalu piyaṅgu candanussadāhi*).

Sabbasaṃhāraka—a perfume compounded of many different scents—'omnigatherum' is alluded to on p. 162, *Jāt. Tran.*, Vol. VI. Toilette of the hair, such as brushing it with a brush made of the bristles of boar, after it was treated with vermilion, etc. is mentioned in *Maṭṭhakunḍali Vimāna* (*Tāpetvā jāti hiṅgulikāya majjivā dhovitā sūkaralomena majjita kuṇḍalo*, *V.V.A.*, VIII). Powder for removing hairs was known.⁸ Mustard paste was used by women for the face, Vol. VI, *Jāt*,

¹ *Jāt.* No. 547.

² Cf. *Bharat*; Ch. 21. *Vatikāṅguli mudrā ca syādaṅgulivibhūṣanaṃ*.

³ Also *Kāvya Prakāśa*: Sl. 570.

⁴ *Bhārhut Stūpa*, p. 134 *et seq.*

⁵ *Cave Paintings of Ajantā*, p. 16.

⁶ Cf. *jāla* in the *V.V.A.*

⁷ *Jāt.* No. 492. *Tacchasūkara*: 'Mahākosala kira Bimbisārassa dhitarapaṃ dento nahānyamulathāya kāsīgāmaṃ adāsi'.

⁸ *P.V.A.*, I, 10 *Kesupapātanambhesajjam*.

pitam katvā lāmañcagandham gāhāpetva pasannacittena Bhagavato patte adāsim'. On hearing the prescription from me an eminent kavirāja friend of mine here, Paṇḍita Nrityagopāla Kavirātna, prepared the medicine; and he tells me that it had a wonderful effect on a man who was suffering from acute colic and writhing with pain. Hot water mixed with molasses used as a sweating mixture, and fomentation with it is a cure for flatulence and intestinal wind (vātā).¹

(c) Another very interesting cure, viz. of ear disease is related in Kakkāṭarasadāyaka Vimāna (V.V.A., p. 243 *et seq.*). An account of this has been already published by me in *Man in India*, Vol. VI.

¹ Book of Kindred Sayings I, Rhys Davids, pp. 220, 221.

A Note on the Age and Authorship of the Tantras.

By CHINTAHARAN CHAKRAVARTI.

THE AGE OF THE TANTRAS.

An attempt has been made in another paper to prove the antiquity of the Tantra system of religion or what may be called Tantricism.¹ It is now necessary to enquire as to when a separate class of works called the tantras came to be compiled. The orthodox view attributing a divine origin to it and thus claiming for it a hoary antiquity (works like the *Vṛhaddharma-Purāṇa* [II, 6. 139] and *Nārāyaṇī Tantra* as mentioned in the Bengali work *Sādhana-kalpalatikā* even claiming a pre-Vedic antiquity) is not found to have been universally accepted even by the ancients. There seems to have always been a lurking suspicion with regard to the genuineness of that attribution some even going to the extent of dubbing at least a part of them as modern. Modern scholars also have questioned the antiquity of tantra works in general. It is argued that tantra as a class of literature is not found mentioned in any early work. Lists mentioning various branches of learning also do not include the name tantra. It is true the word is met with even in the Vedic literature but there it is not used in the sense of a particular class of literature. Even in as late a work as the *Amarakośa* the word is not given this sense.

But it should be noted that non-mention cannot be taken as an argument in favour of non-existence, for if the *Amarakośa* does not assign to tantra the sense of a particular class of literature or a particular form of worship, almost a contemporary work, the *Brhatsamhitā* of *Varāhamihira* (circa 5th-6th century) is found to use the word in this or a similar sense (XVI, 18). The silence of *Amara* who was a Buddhist may be explained by the supposition of his unfavourable attitude towards the tantras.

More than one *Purāṇa* work (like the *Kūrma Purāṇa* as quoted in the *Tantrādhikāri-nirṇaya*) have given elaborate descriptions of the origin of the tantras. Even the detractors of the tantras tried to read denunciation of tantricism in admittedly old *Dharmaśāstra* and *Purāṇa* works.²

Pāsupata and *Pañcarātra* systems are found to have been mentioned by name in some of the *Purāṇa* and *Dharmaśāstra* works. They are referred to in the *Brhatparāśara*, *Visnudhar-*

¹ *Antiquity of Tantricism*, C. Chakravarti, — *I.H.Q.*, Vol. VI, pp. 114ff.

² Cf. the present writer's paper on the *Authoritativeness of the Tantras* in the *K. B. Pathak Commemoration Volume*.

mottara, Yogivājñavalkya, etc.¹ Pañcarātra is also mentioned in the Mahābhārata. Śivaśāsana is referred to in the Devī-Purāṇa.² The Laṅkāvatāra sūtra which was translated into Chinese as early as the 5th century was evidently aware of the Pāsupata system the tenets of which it discusses.

These references to the tantras in some of the Purāṇas do not, however, help us in any way in deciding the relative antiquity of the Purāṇas and the tantras. For some of the tantra works are also found to refer to the Purāṇas both collectively and individually. The term *aṣṭādaśapurāṇa* is found to occur in many a tantra work (e.g. Nirvāṇa Tantra, Pātala IX). Besides the Kātyāyanī and the Vārāhī tantras give elaborate rules that are to be observed in reciting the Devīmāhātmya section of the Mārkaṇḍeya Purāṇa.

And though some works of the tantra system may be all fairly old, even most of the original works belonging to that system cannot be supposed to be so. On the other hand, many of them are palpably very modern. Thus though the earliest of the tantra works may possibly belong to the beginning of the Christian era, if not earlier, the latest of them come down as late as even the 18th century. As a matter of fact no particular age is possible to be assigned to the tantra literature which took a long period of time to develop; the age of each individual work has to be determined on the basis of the available evidence—both internal and external.

Some of the tantra works are undoubtedly very old. Manuscripts in Gupta characters of several tantra texts have been found. Even the Sarvajñānottara Tantra, which seems to be a comparatively later work having been composed when other tantras had been completed, has a fragmentary manuscript in Gupta characters.³ A manuscript of the Kujjikā Tantra in Gupta characters is in the Manuscripts Collection of the Asiatic Society of Bengal. A manuscript of the Nīśvāsa-saṃhitā in the Durbar Library of Nepal is written in the transitional Gupta characters.⁴ In the opinion of MM. H. P. Sastri this manuscript may be a century older than the Cambridge manuscript of the Parameśvarī Tantra which was copied in 859 A.D.⁵ At the end of the manuscript of the Saurasaṃhitā in the Durbar Library of Nepal there are two leaves stated to be in Gupta characters giving a number of tantra formulæ.⁶

¹ Tantrādhikāri-nirṇaya of Bhattojīdīksita.

² Aparārka's commentary on *Yājñavalkyasamhitā*—Anandaśrama Sanskrit Series, pp. 16 and 18.

³ H. P. Shastri, Nepal Catalogue, I, p. 85.

⁴ H. P. Shastri, Nepal Catalogue, I, pp. 10 and 137; Preface, p. lxxvii.

⁵ Bendal, Cambridge Catalogue, p. 27.

⁶ H. P. Shastri, Nepal Catalogue, I, Preface, p. lxxvi. Of other old tantra MSS. copied as early as the 10th, 11th or 12th century in the

The twenty-eight Śaiva āgamas of the South are referred to as early as the time of the Pallava king Rajasimhavarman, in his Kailāsanātha temple inscription. Tamil Śaiva poets of the 9th-10th centuries and Kashmir Śaiva works of the same period also refer to these works.¹ Works of Kashmir Śaivas as early as the eighth or ninth century are found to refer to works like the *Svacchanda Tantra*. Besides mentioning the views of a few tantra sects, as Śaṅkarācārya is supposed to have done by his commentators commenting on the *Vedānta-sūtra* (II. 2, 7-8), Śaṅkara has referred to sixty-five tantras in his *Anandalahari* (v. 31) pointing to one at least by name, e.g. the *Svatantra Tantra*. It has been shown by Dr. P. C. Bagchi (I.H.Q., V, pp. 754ff; VI, pp. 97ff.) on the basis of epigraphic records that a number of tantric texts were introduced into Kambuj as early as the beginning of the 9th century, thus indirectly proving their antiquity.

Of the Buddhist tantras also some at least are fairly old. Buddhist Dhāraṇīs may be looked upon as precursors of the tantras, and the Suramgama-sūtra, which Fa-Hian is said to have repeated for his protection, contained the most complete list of Dhāraṇīs. Considering that the book was held in reverence by Fa-Hian in the 5th century, Beal assigned it to a period not later than the 1st century.² We may thus find traces of the beginning of the Buddhist tantras as early as the 1st century of the Christian era. According to Yuan-Chwang the Dhāraṇī or Vidyādhara-piṭaka belonging to the mantrayāna is as old as the Mahāsāmghikas (1st-2nd century A.D.).³ Several Buddhist tantra works are known to have existed as early as the 5th or 6th century A.D. Thus the Horiuzi palm-leaf MSS. in Japan contain besides Dhāraṇīs, five tantras.

Amoghavajra, a śramaṇa of North India and a Brahmana by caste who resided in China between 746 and 771 A.D., translated 77 works including Uṣṇīṣacarkravartī Tantra, Garudagarbhaga Tantra, and Vajrakumāra Tantra.⁴ Atiśa Dipaṅkara was proficient, among other things, in the four classes of tantras.⁵ Padmasambhava of Udyāna was in charge of the tāntrika part of Buddhist liturgy.⁶

Tāranātha helps us to some extent in his history of Buddhism to determine the dates of some of the Buddhist

Durbar Library of Nepal, cf. H. P. Shastri, Nepal Catalogue, I, Preface, pp. lxxvi and lxxix. The MS. of the Saurasamhitā was copied in the 10th century (*op. cit.*, p. lxxvi), that of the Kirana Tantra in 924 A.D. (*op. cit.*, Vol. II, p. 99), that of the Jayākhaarasamhitā in 1187 A.D. (*op. cit.*, Vol. I, p. 76).

¹ Farquhar, *An Outline of the Religious Literature of India*, p. 193.

² Introduction to Beal's Fa-Hian, p. lxxii.

³ Beal—*Si-yu-ki*, II, 165; Kern—*Manual of Indian Buddhism*, p. 6.

⁴ Nanjio, Catalogue of Chinese Tripiṭaka, App. II, p. 445.

⁵ S. C. Das, *J.B.T.S.*, Vol. I, Pt. I, p. 8.

⁶ *loc. cit.*

tantras. He gives the names of some persons who, according to him, introduced particular tantras. In a general way he says that Asaṅga, elder brother of Vasubandhu, introduced tantras into Buddhism and that they were handed down in the most secret manner possible up to the time of Dharmakīrti (600–615 A.D.).¹ In another place he associates particular names with particular works. Thus, we are told that Saraha introduced the *Buddhakapāla Tantra*, Luipā the *Yoginīsañcaryā*, Kambala and Padmavajra the *Hevajra Tantra*, Kṛṣṇācārya the *Sam-putatilaka*, Lalitavajra the three divisions of the *Kṛṣṇayāmāri Tantra*, Gambhiravajra the *Mahāmāyā*, and one Pito the *Kālacakra*.²

But as has already been indicated, all works—Hindu or Buddhist—are not old. T. Gopinath Rao³ has shown that many works of Śaiva and Vaiṣṇava āgama have referred to things and persons belonging to 7th–11th centuries so that they cannot be very old. He however admits that they were probably based on older works. In the *Uttara-Kāraṇāgama* of the Śaivas, says he, it is laid down that on the 7th day of the Mahotsava of Śiva the impalement of the Jains, said to have been carried out at the instance of the Śaiva saint Tiruññānasambandha, ought to be celebrated. This Śaiva saint, however, is known to have flourished in the middle of the 7th century A.D. so that the work cannot be earlier than that period. This work as also many other works on Śaivāgama prescribe the recitation of the Draviḍa Vedas, i.e. the Devārāma hymns composed by Tiruññānasambandha, Vāgiśa, and Sundaramūrti, the last of whom lived not earlier than the 9th century.

The prose recension of the *Vaikhānasāgama* is perhaps the oldest among the āgamas of the Vaiṣṇavas. The metrical *Vaikhānasāgama* of the Vaiṣṇavas requires the Draviḍa Vedas, i.e. Prabandhas of the Śrī-vaiṣṇavas or Alvars (8th or 9th century) to be sung in the front of divine processions. The *Īśvarasamhitā* of the Pañcarātra mentions the saint Sāthakopa (800 A.D.) and Ācārya Rāmānūja (1000 A.D.). The *Bṛhad-Brahmasamhitā* also mentions the latter.

According to some scholars the cult of Tārā, a very important tantric goddess in later days, is not very old. If this conclusion proves to be correct it would follow that works or rather portions of works dealing with the worship of Tārā must not also be very old. Pandit Hirananda Sastri⁴ depending on the finds of icons in old sites concludes that the cult of Tārā cannot be older

¹ Geschichte der Buddhismus, Tr. by Schiefner, p. 201.

² *op. cit.*, p. 275f. Dr. B. Bhattacharya has sought to show that these people flourished in the 7th–8th centuries (*J.B.O.R.S.*, xiv, p. 343).

³ *Elements of Hindu Iconography*, T. Gopinath Rao, Vol. I, Part I, Introduction, Section xvi, pp. 55ff.

⁴ Origin and Cult of Tārā, *Memoir, Archæological Survey*, No. 20, Hirananda Sastri, pp. 99ff.

than the sixth or seventh century of the Christian era. In his opinion the statement that Nāgārjuna revived the cult of Eka-jatā, a form of Tārā, in the country of Bhoṭa (Tibet) should be taken with an amount of caution. It may be that the name of the well-known Buddhist reformer was associated with Tārā worship with a view to carry weight. Or it may be that this Nāgārjuna was a different person altogether.

Kulācāra section of the tantras is stated by Jayaratha in his commentary on the Tantrāloka of Abhinava Gupta to have been introduced by Minanātha and Matsyendranātha.¹ According to the *Gorakṣasiddhāntasamgraha* (pp. 18-19) and *Tantrarājatantra* also, the tantras, probably the Kaula ones, were introduced on earth by the nine Nāthas.² A manuscript copy of the *Mahākaulajñāna-vinirṇaya* stated to be introduced by Matsyendra has been found in transitional Gupta characters, about the same characters in which the manuscript of the Parameśvara Tantra of the Cambridge University Library copied in 859 A.D. was written.³ Wassiljew also places the Nāthas at about this time, e.g., 800 A.D. This would therefore seem to fix the upper limit of the Kaula tantras.

By the side of these we have also got works which bear undeniable marks of modernity. Gorakṣanātha is referred to in several works and hymns to him (attributed to the *Kalpadrūma Tantra* and *Rājaguhya*) are mentioned in the *Gorakṣasiddhāntasamgraha* (pp. 42-43). Caitanya, the Vaiṣṇava reformer of Bengal, is referred to in works like the *Īśānasamhitā* stated to be included in the *Kulārṇava*. The *Yoginī Tantra* gives an account of king Viṣṇusimha, the founder of Kocha dynasty.³ The *Viṣvasāra Tantra* is said to give an account of the birth of the great Vaiṣṇava teacher of Bengal, Nityānanda.⁴ The *Meru Tantra* goes further. It refers to the English people and the city of London.⁵ Dialects of some Indian vernaculars found

¹ भैरव्या भैरवात् प्राप्तं योगं व्याप्य ततः प्रिये ।

कामरूपे महापीठे मञ्जुदेन महात्मना ॥

तत्सकाशात् सिद्धेन मौनाख्येन वरानने ॥

—Tantrāloka (Trivandrum Sanskrit Series), pp. 24-25.

² तन्त्रं मदुक्तं भुवने नवनाथैरकल्पयत्—Tantrarājatantra—I. 7.

H. P. Shastri, Nepal Catalogue, II, p. 32; preface, p. xix.

³ The name of this king as given in an extract of the *Yoginī Tantra* in the Śabdakalpadrūma under the word Śiva is Viṣṇusimha while the edition of the work (Bombay, śaka 1823) published from the Venkatesvar Steam Machine Press reads *venusimha* (xiii, 14).

⁴ Mahānirvāṇa tantra (Eng. trans.), M. N. Dutt, Introduction, p. 11.

⁵ इरेजा नववट्पत्र लण्डजाद्यापि भविनः ।

in the mantras in what are called the Śābara tantras are evidence of their late origin.

These evidently modern works represented as having been revealed by divine Śiva would naturally rouse suspicion as regards their genuineness and it is refreshing to note that a similar suspicion was found lurking in minds of people even in days of old. Yāmūnācārya makes pointed reference to it. It is stated that some people even in modern times would pose as teachers of tantras and promulgate doctrines that were not sanctioned by the tantras.¹

It thus seems that several of the tantras are fairly old, some going back as early as the beginning of the Christian era. But it is most likely that like the Purāṇa literature the tantra literature also swelled in course of time with the introduction of fresh material in the form of new works or interpolated passages.

AUTHORSHIP OF THE TANTRAS.

As regards the authorship of the tantras we must admit that we know very little, at least with regard to the oldest and some of the best known of the works. There is no room in most cases even to hazard a guess. All that we are told is that they are of divine origin, undoubtedly to give them an appearance of sanctity and antiquity. The word *āgama* is interpreted as consisting of the initial letters of the words *āgata* (come), *gata* (gone), and *mata* (approved). It is explained to refer to the *śāstra* that has been related by Śiva to his divine consort Pārvatī and has been approved by Viṣṇu. Similarly the *nigama* class of the tantras is supposed to have issued from (*nirgata*) the Devī (*Pārvatī*). Most of the tantra works of the Śaivas and Śāktas are thus represented as being interlocutions between Śiva and some aspect of his divine consort or his or her sons or attendants.² There are the Vaiṣṇava tantras again in which Viṣṇu in one of his various aspects is generally represented as the speaker while in the Buddhist tantras, called *Sanḡitis*, Buddha or a Bodhisatva is stated to have been the author or speaker. But

¹ अद्यत्वेऽपि हि दृश्यन्ते केचिदागमिकचर्यात् ।

अनागमिकमेवायं व्याचक्षाणा विचक्षाणाः ॥

—*Āgamaprāmānya*, p. 4.

² The tradition that Śiva was the author of the Pāśupata system of the tantras goes back to the Mahābhārata (Śānti, 350. 67). Bhāskara-rāya in his *Setubandha* (VII. 47) has referred to the line of teachers of the tantras as follows: Supreme Brahman, Svachchanda Bhairava, (anāśrita) Iśvara, Devī, Sadāśiva, Iśvara, Vidyēśvara, Śrīkantha, etc. Bhāskara has quoted in his *Saubhāgyabhāskara* (v. 118) the Devībhāgavata and Skanda Purāṇa to show how different works issued from different parts of the body of Śiva. Bhoja has made an attempt to establish Śiva as the author of tantras by means of logical arguments (Tattvaparakāśa, pp. 26ff.).

the Vaiṣṇava Pañcarātra work, *Ahīrbudhnyasamhitā*, is in the form of interlocution between Ahīrbudhnya, a form of Śiva, and Nārada, the sage. The *Nārada Pañcarātra* also has some chapters which are interlocutions between Mahādeva and Pārvatī while there are some between Mahādeva and Nārada.

But in spite of this assertion of the divine origin of the tantra works we are fortunately given some clue for finding out their real human authors, at least in some cases. Thus in some works, a particular devotee is represented as having been the fortunate person to whom the particular work was revealed by its divine author as the Vedic Mantras were revealed to the ṛṣis (seers). We thus find human names associated with several works, some of which are definitely stated to have been brought down (*avatārīta*) on earth by these persons.

Some of the celebrated sages like Sanatkumāra, Dattātreyā, Aṣṭāvakra, and Bharadvāja are found to be associated with tantra works bearing their names.¹

The *Śivasūtras*, the most revered work of the Śaivas of Kashmir, was according to a fairly old tradition revealed to Vasugupta in a dream on the mountain called Mahādeva.² The *Śrīmatottara* tantra, though represented as having been revealed by Śiva to Pārvatī, is at the same time stated in the colophon to have been brought down on earth by a human author Śrīkanthanātha (e.g. *Śrīkanthanāthāvatārīta*).³ *Mahākaulajñānavinirṇaya* is similarly stated to have been brought down by Matsyendranātha.⁴ *Yogavijayastavarāja* from the Brahmayāmala is stated to have been brought down from heaven by Pippalādamuni, though it was originally spoken by Śiva to Pārvatī.⁵ The *Maheśvariya Tantra*⁶ which deals with topics like *māraṇa*, *ucāṭana*, etc., is said to have been manifested by Śiva to the sage Sivagiri and then published by his disciple.

But there are examples in which no such reference to revelation or bringing down is mentioned, but they are straightly given out as having been composed (*racita*, *praṇīta*) by these persons. The *Pūrvāmṇāya Tantra*, as is stated by the colophon of its manuscript in the Durbar Library, Nepal, was composed by Ratnadeva.⁷ Similarly the *Jñānalakṣmī* or *Jyākhyasamhitā* is stated to have been composed by one Candradatta.⁸

¹ It is curious that Dattātreyā, considered to be the father of the yoga system, is associated with the *Ṣaṭkarmas* (the six vulgar rites) in his *Dattātreyā Tantra*.

² *Kashmir Shaivism*, J. C. Chatterjee, 26ff.

³ H. P. Shastri, *Nepal Catalogue*, I, p. 255.

⁴ *Ibid.*, p. 32.

⁵ *Ibid.*, p. 236.

⁶ Published by Kshemraj Krishnadas, Bombay, 1842 S.E.

⁷ H. P. Shastri, *Nepal Catalogue*, I, p. 208.

⁸ *Ibid.*, pp. 1, 76, 77.

*Pāradayogaśāstram*¹ like many other tantras is in the form of a dialogue between Śiva and Pārvatī. But it was composed by Śivarāma Yogindra as is mentioned in the colophons to some of the chapters. The *Tārāvilāsodaya*,² a tantra work in the form of an interlocution between Mahādeva and Pārvatī united in embrace, is definitely stated in the colophon to have been composed by Vāsudeva Kavikaṅkana³ who culled the verses, as we are informed in one of the introductory verses, from a work called the *Īṇakramamantravāridhi*.

The human authorship of the Buddhist *Sanḡitis* is revealed by the introductory lines which begin 'I heard that one day Bodhisatva was in such and such a condition, etc.', thus pointing to the fact that in their present forms they are related by persons other than the Buddha or Bodhisatva.

Some of the detractors of tantra rites reluctant to recognize the divine origin and sanctity of the tantras have expressly declared their human origin and consequent unauthoritativeness. According to the *Kūrma Purāṇa* one Sātvata Amśu was the author of a śāstra prevalent among bastards and low-class people. This śāstra, after the name of the author, came to be known as *Sātvata Tantra*. This fact seems to have been referred in the *Bhagvata Purāṇa* as well.⁴

The *Parāsara Purāṇa*, as quoted in the *Tantrādhikārinirṇaya* (p. 12) of Bhattojīdikṣita, also, seems to refer to the human origin of the Pañcarātras, etc.⁵ Vedottama, in his *Pāñcarātra-*

¹ Published by Matilal Banarasi Das and Co., Lahore.

² *Descriptive Catalogue of Sanskrit MSS. in the Sanskrit College, Calcutta*, V, 30.

³ This title has almost become a proper name in Bengal referring to the author of the *Udḡmaṅgala*, e.g. Mukundarāma Cakravartī

⁴ कौर्म—

अथांशुः सात्वतो नाम विष्णुभक्तः प्रतापवान् ।
महात्मा दाननिरतो धनुर्वेदविदां वरः ॥
स नारदस्य वचनाद् वासुदेवार्चने रतः ।
शास्त्रं प्रवर्तयामास कुण्डगोलादिभिः त्रितम् ॥
तस्य नाम्ना तु विष्णुतं सात्वत नाम शोभनम् ।
प्रवर्तते महाशास्त्रं कुण्डादीनां हितावहम् ॥ इति

श्रीभागवतेऽपि—

तेनोक्तं सात्वतं तन्त्रं यज्ज्ञात्वा मुक्तिमाप्नुवेत् ।
यच्च स्त्रीशूद्रदासानां संस्कारो वैष्णवो मतः ॥

— *Vīramitrodaya*, Vol. I, p. 24.

⁵ तथा पराशरपुराणे दशमाध्याये—

धर्माधर्मादिविज्ञाने लागमाः पुरुषोदितः ।
पाञ्चरात्रादयः सर्वे न प्रमाणमिति स्मृतिः ॥

prāmāṇya has gone so far as to declare that the original tantra works of the Śaivas that are believed to have been revealed by Maheśvara were compiled by an ordinary human being named Maheśvara and some credulous people were mistaken to identify him with the god Maheśvara only on the flimsy ground of the similarity of names.¹

A similar charge appears to have been brought against the Vaiṣṇavas as well. It is stated that their scriptures were not the composition of Vāsudeva, the god, but of a deceitful person named Vāsudeva who promulgated his doctrines for the delusion of the people.²

That some of the tantra works were comparatively modern and were the composition of ordinary human beings was also believed by persons having no marked bias against the tantras. Aparārka in his commentary on the *Yājñavalkya Saṃhitā* (I. 7) specially condemns the works of human authors.³ The sect Laukuliśa Pāśupata system is definitely known to have been founded by one Laukula who was supposed to have been an incarnation of Mahādeva.⁴

¹ केनचिद्वीर्यनेन तत्रज्ञेन महेश्वरसमाननाम्ना त्रयोमार्गवद्विष्णुतेय प्रक्रिया विरचिता । तन्नामसामान्येन केचिद् भ्रान्त्या महेश्वरोपदिष्टमार्गमवलम्बितवन्तः ।

(From a copy of a MS. of the work borrowed from Mr. Sarat Kumār Ray's MS. Library.)

² वासुदेवाभिधानेन केनचिद् विप्रलिप्तना ।

प्रणीत प्रसूत तन्त्रम् इति निश्चिनुमो वयम् ॥

- *Āgama-prāmāṇya* of Yāmunācārya, p. 25.

³ तत्रापि यत् पौरुषेय न केवलमननुष्ठेय तद् यावद्प्रमाणमपौति हेयम् ।

(p. 19 of the *Yājñavalkyasamhitā* as published in the Ānandaśrama Sanskrit Series of Poona).

⁴ *J.R.A.S.*, 1907, p. 337 ; *J.B.R.A.S.*, XXII, pp. 15ft.

On a Few Ancient Indian Amulets and Charms.

By SARAT CHANDRA MITRA.

I. THE AMULETS AND CHARMS USED FOR THE PROTECTION OF THE CHILDREN.

Kādambarī (कादम्बरौ) is the title of a famous prose composition by the ancient Indian author, Bāna, who flourished in the first part of the 7th Century A.D. during the reign of King Sri Harsha at Kanouj. This Sri Harsa was Bāna's patron.

This prose work gives us a vivid picture of the life, religion, manners, and customs of the Hindus of the 7th Century A.D. From a study of this famous work, we find that the Hindus of these far-off times resorted to many expedients for protecting their children from the influences of ghosts and other malignant spirits. These expedients consisted in the use of various amulets and charms which were tied on and applied to the child's neck, elbow, and wrist. I shall deal in this paper with a few of these ancient Indian amulets and charms and discuss the magical significance thereof.

In the aforementioned Sanskrit romance entitled *Kādambarī*, there is an episode which runs to the following effect:—

In ancient times, there lived in Ujjainī a mighty king named Tārāpīḍa and his queen whose name was Vilāsavati. His minister was a Brāhmana named Sukanāsa. Both the king and his minister were childless. In his childless state, King Tārāpīḍa used to conjure up before his mind's eye the vision of the birth of a son to him and of this son's bearing upon his body a few amulets and charms for protecting him from ghosts and other evil-doers, clambering upon his back.

The Sanskrit text, in which the aforementioned vision is described, is given below:—

कदा सर्वौषधिपिङ्गरजटिलकेशो निहितरक्षाष्टविन्दुनि तालुनि
विन्यस्तगौरसर्वपोम्निश्रभूतिलेशो गोरोचनाचित्रकण्ठसूत्रयन्त्रितान-
शयो दशनमून्यस्मिताग्नः पुत्रको जनयिष्यति मे हृदयाक्लादम् ?

English Translation.

O ! When again will my little boy give rise to the delight in my heart—the child lying on his back, his toothless face beaming with a smile, *his hair turned yellowish by the powdered dust of certain medicinal herbs, his palate moistened with the*

drops of charmed ghi (or clarified butter) for protection, whereon were placed particles of ashes mixed with the grains of white mustard, and the thread, beautifully dyed with the yellow pigment of a cow, (tied) round his neck?

Remarks.

From a study of the foregoing passage, we find that, in ancient India during the beginning of the 7th Century A.D., the underdescribed amulets and charms were tied round and applied to necks, palates, and hairs of little children for protecting them from the influences of ghosts and other malevolent-doers :—

(1) A string dyed yellow with *gorochanā* or the yellow pigment of a cow was tied round the neck of the child, the string forming a circle round his neck.

(2) Drops of charmed *ghi* (or clarified butter) and honey, mixed with ashes and grains of white mustard, were applied like an unguent upon the child's palate.

(One commentator says that this unguent was applied on the child's palate for augmenting his life on the occasion of the *jātakarma* (जातकर्म) ceremony. This ceremony was performed, most likely, on the 30th day from the date of the child's birth for purifying the newly-made mother from the ceremonial uncleanness which had been inflicted upon her by the birth of the child. It very likely corresponds to the *shashṭi-pūjā* (ষষ্ঠীপূজা) ceremony of the Hindu womenfolk of Bengal.)

(3) The child's hair was dusted with the powder made by pounding certain medicinal herbs and substances.

Now, I shall take up for discussion the amulet No. 1 *supra*. Its principal features are :—

- (a) A string tied round the child's neck.
- (b) The circular shape of the string-necklet.
- (c) The *gorochanā* used for dyeing the string-necklet yellow.
- (d) The yellow colour of the string-necklet.

As regards point (a) set forth *supra*. I may state here that many races of people, both civilized and uncivilized, believe in the efficacy of the coloured and uncoloured string or ligature as a talisman or amulet for warding off the attacks of diseases. These bands of string or ligatures are tied either on the wrist, above the elbow-joint, or round the neck. The practice of tying these amulets is current among the Chinese, the Burmans, the British peasantry of Norfolk in Great Britain, among the people living in the localities round about London. The practice also exists among the Afghans, and the Bengalis living in Bengal and

in Northern India.¹ Closely analogous to the aforementioned practice is that followed by the Hindus of ancient India, of tying yellow-coloured strings round the necks of little children for warding off the attacks of ghosts and other malevolent spirits.

Then coming to point (b) set forth *supra*, I may state that it is believed throughout Northern India that the circle or the circular shape possesses great magical potency in keeping off malignant spirits. (See the various examples cited at pages 210ff. of Dr. W. Crooke's *An Introduction to the Popular Religion and Folklore of Northern India*. Allahabad Edition of 1894.)

Then, coming to point (c), I may state that the *gorochanū* is a yellow pigment found in the navel of a cow. While others say that it is prepared from the cow's urine. In any case, it is a *मङ्गलद्रव्य* or an object which brings good luck, because it is produced by the sacred cow. It is, therefore, endowed with considerable magical potency for driving off ghosts and other evil spirits.

Then, as regards point (d) mentioned above, I may state that the yellow colour is a scarer of ghosts and other malignant spirits, who do not venture to come near objects which are dyed or tinted with that colour. It is for this reason that the yellow-coloured turmeric is used in the domestic ritual. Mixed with oil which is also efficacious, the bride and the bridegroom are carefully rubbed before marriage with the condiment which is known as *abtan*. Five roots of turmeric are sent to complete the betrothal. This explains the use of yellow clothes by various classes of ascetics and *sannyāsīs* and of *chandan*, or sandal-wood paste in making caste-marks and for various ceremonial purposes. So the dead body is covered with turmeric before cremation,--a custom which is certainly not of Aryan origin, because it is current among the Thārus, one of the most primitive tribes living in the sub-Himalayan forests. Yellow and red, again, are the colours of marriage-garments.²

The foregoing uses of the yellow-coloured turmeric for warding off ghosts and other evil spirits, which have been mentioned by Dr. W. Crooke, are prevalent in the United Provinces of Agra and Oudh and also in Bihar. But, in Bengal also, there is the turmeric-ceremony (*गङ्गास्नान*) on which occasion both the bridegroom and the bride are anointed with the yellow-coloured paste of pounded turmeric mixed with mustard oil. Both these ingredients have the magical efficacy

¹ For a fuller discussion of this subject, *vide* my article entitled : 'North Indian Incantations for Charming Ligatures for Snake-bite', published in *The Journal of the Anthropological Society of Bombay*, Vol. X, pp. 593--614.

² *Vide* Crooke's *An Introduction to the Popular Religion and Folklore of Northern India*. Edition of 1894. Page 201.

of protecting the bridegroom and the bride from the malignant influences of ghosts and other beings of that ilk. This ceremony takes place before the actual wedding rites are performed.

Then again, for the foregoing reasons turmeric and saffron are extensively used in the marriage-ceremonies of the Hindus of Western India.¹

Then again, in their marriage-ceremonies, the Parsis of the Bombay Presidency use the *mangala-sutram* or 'the auspicious thread or cord', which is dyed yellow with saffron and to which is attached a small gold ornament. This thread is tied on to the bride's neck by the bridegroom.²

Then I shall take up for discussion the charmed unguent No. (2) which has been mentioned above. The principal ingredients used in the preparation of this unguent are (a) drops of charmed clarified butter (*ghi*) and honey, (b) ashes, and (c) grains of white mustard.

As for the ingredients (a) mentioned *supra*, I may state that the *ghi* is a product of the sacred cow, and, therefore, possesses sacrosanct properties. Both the *ghi* and the honey are used in various Hindu rites and ceremonies. Small earthenware saucers containing *ghi* and honey are placed upon the *barandālā* (बरण्डाला) which is a winnowing-fan on which are placed various kinds of sacred objects. This winnowing-fan or basket is placed before the deities on the occasion of their worship. It is also waved before the bridegroom on the occasion of marriage-ceremonies. As both the *ghi* and the honey are sacred objects, they have the magical potency of scaring away ghosts and other malignant spirits.

As regards the ingredient (b), I may say that the ashes used in the preparation of this unguent are, most likely, the ashes of fuel burnt upon the sacrificial fire. It is, for this reason, that these ashes collected from sacrificial fire, are very efficacious for warding off the influences of ghosts and other evil spirits.

Then, as regards the ingredient (c), namely, grains of white mustard, it may be stated that mustard-seeds were used in ancient India for exorcising away ghosts and other malignant spirits. Their use for this purpose is mentioned in the *Atharva Veda*. One Sanskrit text goes on to say that white mustard-seeds are रक्षोग्न (Rakshoghna) or 'slayer of demons and giants', and भूतनाशन (Bhūtanāśana) or 'scarer of ghosts'.

¹ For a fuller exposition of this subject *vide* the article on 'The Use of Saffron and Turmeric in Hindu Marriage Ceremonies', by Lt.-Col. K. R. Kirtikar in *The Journal of the Anthropological Society of Bombay*, Vol. IX, pp. 439-454.

² *Vide* the article on 'Some Parsi Marriage Ceremonies. How far they are borrowed from the Hindus', by Dr. J. J. Modi in *The Journal of the Anthropological Society of Bombay*, Vol. VIII, pp. 425-430.

The appositeness of the epithet *rakshoghna* is strikingly illustrated in the Birhor legend about Rāvaṇa's abduction of Sītā. In this traditional story, it is narrated that, before Rāma and Lakshmaṇa went out ahunting, the latter gave to his sister-in-law Sītā a handful of charmed mustard-seeds, saying: 'O sister, if any stranger would come before your *kumba* throw a grain of mustard at him, whereupon he will fall down dead and remain so for an hour and then come to life again. Thereupon, you should throw another mustard-seed at him, whereupon he would die again, and thereafter revive'. When Rāvaṇa, the demon-king of Lankā, appeared before Sītā, the latter acted up to Lakshmaṇa's instructions and went on throwing mustard-seeds at him *one by one*, and he died and revived as many times as the mustard-seeds were thrown at him separately. After reviving for the last time, Rāvaṇa, addressing Sītā, said: 'O lady, why are you taking the trouble of throwing the mustard-seeds at me *one by one*? Throw them all at me *simultaneously*'. Hearing these words, Sītā threw all the mustard-seeds at Rāvaṇa simultaneously. No sooner was this done than the demon-king burst into flames and was reduced to ashes.¹

Then again, the people of the Punjab and Northern India believe that ghost, demons, and other evil spirits have a lively dread of the mustard-seed. For this reason, it is excessively used in the exorcism-ceremonies throughout India. In the Punjab, it is believed that ghosts and spooks cannot pass over ground which has been sown with mustard. For this reason, mustard-seeds are scattered about the halting-places, when a corpse is taken for the purpose of burial to the graveyard so that the ghost of the deceased person may not retrace its steps homewards. Then again, for the same reason, the *Silari* or the professional hail-avorter of the district of Mymensingh in Eastern Bengal throws mustard-seeds in the south-western corners of houses in order to make them proof against lightning-strokes, because the malignant god of storms, who hurls the lightning-stroke against men, beasts, trees, and houses, is very much afraid of mustard-seeds, and will not, on any account, approach localities which have been sown with these seeds.

Lastly, I shall take up for discussion, the charm-medicine No. (3), which consisted in powdering the hair of the child's head with a powder made by powdering certain medicinal herbs and ingredients so as to impart a yellowish tinge to his hair.

I have already shown above that the yellow colour is a scarer of ghosts and other beings of that ilk.

¹ Vide my article entitled: 'Note on the Birhor-Legend about Rāvaṇa's Abduction of Sītā'. Published in *The Journal of the Bihar and Orissa Research Society*, Vol. XIV, pp. 548-555.

The medicinal herbs and ingredients, by pounding which the powder sprinkled on the child's head was prepared, not only possessed medicinal properties, but, very likely, were believed to possess magical potency for keeping off the influences of malignant spirits from the child.

The medicinal herbs and ingredients (सर्वौषधि) are enumerated in the undermentioned Sanskrit text :—

१ । कुष्ठमांसीहरिद्राभिर्वचाश्लेयचन्दनैः ।

२ । सुराकर्पूरचन्दनैः सुस्तसर्वौषधिः स्मृतः ॥

English Translation.

Sarboushadhi is a powdered or pasted compound of (1) *musta*, (2) *kushtha-māngsī*, (3) turmeric, (4) *vachā*, (5) *Silājatu*, (6) sandal, (7) alcohol, and (8) camphor. (This paste is applied on the pate of a young child.)

It will not be, I hope, out of place to give here a succinct account of the medicinal properties of the principal ingredients enumerated in the Sanskrit text quoted above

(1) *Kushthamāngsī* is, very likely, identical with *Jatāmāngsī* which is botanically known as *Nardostachys jatamansi*. Its Bengali name is *Jatāmāngsī*: while its Hindi synonym is *Balchhar*. This plant grows upon the higher altitudes of the Himalayas. The medicinal commodity consists of short pieces of an underground stem covered with a hairy fibre. It possesses, to a considerable extent, the same medicinal properties as Valerian, and is used as an antispasmodic and a nervine tonic. It is considered to be useful in hysteria and epilepsy. It is also employed in jaundice, affections of the throat, and as an antidote for poisons. It is also used to scent and clean the hair. About 15 cwts. of this drug are annually exported from the Kumaon Hills.

After making a good deal of research the great orientalist Sir William Jones has arrived at the conclusion that *Jatāmāngsī* is identical with the *Nard* or *spikenard* mentioned in the English Bible. In ancient Rome, an ointment was made of this drug. It was considered to be so precious that, in ancient Rome during the days of Jesus Christ, a single pound of this medicine would cost as much as or more than £8-6s.-8d.

(2) *Vachā* is the Sanskrit name of a plant which is botanically known as *Acorus calamus*. Its Bengali and Hindi names are *bach*. Its English equivalent is Sweet Flag. It is a semi-aquatic perennial plant which is a native of Europe and North America. But it is cultivated in damp and marshy places of India and Burma. The whole plant is aromatic. But its rhizomes only are used in medicine. It contains an aromatic bitter principle, and is considered efficacious in epilepsy, cold,

fever, cough, rheumatism, colic, dyspepsia, and various other diseases. An essential oil is obtained from its leaves. This oil was used by English perfumers in the manufacture of hair-powders.

(3) *Silājatu* or *Saileya* is the Sanskrit name of an oily substance which is secreted from the bare rocks in certain parts of India. Its Hindi name is *Silājat*. It is secreted from the rocks when they become heated during the hot weather months at noon-time. It is produced in great quantities in the Vindhyan Hills. It contains iron in a high degree. It is considered to be a very valuable tonic by the practitioners of the indigenous healing-art.

(4) *Musta* is the Sanskrit name of a bulbous grassy plant of which the botanical name is *Cyperus rotundus*. Its Bengali name is *mutā* or *mutō*; while its Hindi synonym is *muthā*. It is found in moist places. Its tubers are used medicinally as diaphoretic and astringent. Dr. Bidie states that these tubers are used as food by the people in famine-stricken areas.

II. THE AMULETS AND CHARMS USED BY THE WOMEN THEMSELVES.

In ancient India, the women themselves wore and used amulets and charms for the attainment of their hearts' desires. These consisted of, possibly, the wearing of thread-circlets, charmed with the recitation of incantations upon them and sometimes tied with herbs of magical efficacy; and, secondly, the carrying of caskets containing birch-bark inscribed with charm-formulæ written with the yellow-coloured *gorochanā* upon them. From a study of *Kādambarī*, we further learn that Queen Bilāsavati wore upon her body thread-circlets which had been charmed by the pronouncement upon them of powerful incantations and, further, having tied on to them herbs possessing magical potency. She further carried caskets (most probably of some kind of metal) containing birch-bark on which incantations had been written with *gorochanā* or the yellow pigment of the cow. These amulets and charms she used while she was very much anxious to become the mother of a son.

[गोरोचनालिखितभूर्जपत्रगर्भान् मन्त्रकरण्डकानुवाह ; रक्षाप्रति-
सरोपेतान्योषधिसूत्राणि वबन्ध ।]

The *mantra-karandakas* were, very probably, small metal cases, made either of gold or silver, having enclosed therein small pieces of birch-bark, having written thereupon suitable charm-formulæ with the yellow coloured pigment of the cow. These amulets were very likely worn upon the upper left arm. Similar metal amulets are extensively worn by the Hindus, both male and female, throughout India even at the present day.

The yellow colour of the *gorochanā*, and the fact of its being the product of the sacred cow, served to scare away malignant spirits from the wearer of the amulet.

Queen Bilāsavatī wore these amulets in order that the evil spirits might not frustrate her desire of becoming *enceinte*.

The circular shape of the thread-circlet and the herbs of magical potency also serve to exorcise away these malignant beings.

**Some Insects found associated with the Bitter-Gourd,¹
Momordica charantia Linn. (Cucurbitaceæ), in
 Calcutta.**

By S. RIBEIRO.

(Published with permission of the Director, Zoological
 Survey of India.)

The insects which are reported in this paper were collected in the months of April to June, 1933, from plants of bitter-gourd which were growing in the compound of a house in Calcutta. In view of the bitter taste of the fruit and of the sap of this plant it was thought desirable to ascertain what insects were associated with this plant. The material collected belongs to 16 species, representing 12 genera, 8 families, and 5 orders. Of the species of insects dealt with in this paper the fruit-fly, *Chaetodacus cucurbitae* Coq., is the only species referred to in literature as having been reared from *Momordica charantia* Linn.

The insect fauna is of special value as it includes families that are of great economic importance: and it is interesting to note the predominance of the injurious over the non-injurious forms. These are here classified according to their infestation of the plant, i.e. (1) those found on the foliage, (2) those found in the flowers, and (3) those found in the fruit.

My thanks are due to Dr. Hem Singh Pruthi for his valuable suggestions.

1. *On Foliage.*

Order COLEOPTERA.

Fam. COCCINELLIDÆ.

Epilachna pubescens Hope.—The species is a prolific breeder, being found abundantly in all stages feeding voraciously on the epidermis of the leaves and devouring the buds of the flowers. Male and female specimens of this beetle that I had caught copulated in captivity. Copulation lasted for about ten minutes, after which the females attempted to fly away. The females started laying eggs two days later. It is noteworthy that on both occasions copulation took place in the evening at about dusk. The *Epilachninae* are herbivorous, their food being

¹ The variety with small globose fruit locally known as *uchhé*.

chiefly the plants belonging to the Orders Cucurbitaceæ and Solanaceæ. Subramaniam¹ remarks that both *E. dodecastigma* Muls. and *E. vigintioctopunctata* Fabr. are known to feed on the bitter-gourd, *Momordica*, etc. Takahashi² gives a full account of the life-history and bionomics of the latter species.

Fam. CHRYSOMELIDÆ.

Aulacophora abdominalis Fabr.—Many adults were noticed eating the leaves. This species is a well-known pest of young Cucurbitaceæ. Husain and Shah³ consider this species to be of the greatest economic importance in the Punjab. These authors have given a list of the 'Plants refused by *A. abdominalis* in captivity' in which *M. charantia* is included.

Aulacophora atripennis Fabr.—Several individuals were seen feeding on the leaves. This beetle⁴ is reported to be 'common on all cucurbitaceous plants, although it is usually a less serious pest than *A. abdominalis*'.

Order RHYNCHOTA.

Fam. JASSIDÆ.

Eutettix phycitis Dist.—Numerous adults and some nymphs were found infesting the leaves and stems, particularly the former. They lie concealed in the dense foliage, usually at the petioles of the leaves. The nymphs always eluded observation. This Jassid apparently undergoes its full life-cycle on the plants, as both nymphs and imagines were collected simultaneously. Moreover, very few nymphs were seen after May, though the adults still prevailed. Dr. Annandale⁵ found this species feeding on the leguminous shrub, *Crotolaria striata* D.C., in Barkuda Island, Chilka Lake.

Numerous adults of a Typhlocybid were also seen on the leaves of this plant at the end of June. Nymphs were fewer.

Order LEPIDOPTERA (HETEROCERA).

Fam. PYRALIDÆ.

Glyphodes indica Saund.—Two larvæ were found eating the leaves. One of these pupated almost immediately, the

¹ Subramaniam, T. V., Some Coccinellids of South India, *Rep. Proc. 5th Ent. Meeting, Pusa*, p. 117, 1923.

² Takahashi, S., Studies on *Epilachna* lady beetles in Japan, *Journ. Tokyo Agric. Col.*, III, pp. 5 and 115, pls. 7, 1932.

³ Husain, M. A. and Shah, S. A., The Red Pumpkin Beetle, *Aulacophora abdominalis*, Fb. and its control; with a short note on *A. atripennis* Fb., *Mem. Dept. Agric. Ind.*, IX, pp. 45-46, 1926.

⁴ Cf. *Rep. Proc. 2nd Ent. Meeting, Pusa*, p. 303, 1917.

⁵ Annandale, N., Ecological Notes, in Paiva, C. A., Rhynchota from Barkuda Island, *Rec. Ind. Mus.*, XV, p. 15, 1918.

other I lost sight of. The pupal period lasted for 8 days. Two adults were also collected. This species is regarded as 'a minor pest of pumpkins and cucurbits generally'.¹

Order DIPTERA.

Fam. STRATIOMYIDÆ.

Sargus metallinus Fabr.—Several specimens were observed flying swiftly about the plants and suddenly alighting on the leaves, where they remained quite motionless. This fly is known to frequent grass and low herbage. Brunetti² records it as 'being common and widely distributed in India in May and July to October'.

2. In Flowers.

Order COLEOPTERA.

Fam. COCCINELLIDÆ.

Epilachna pubescens Hope.—Already enumerated as destroying the buds of flowers.

Order HYMENOPTERA.

Fam. APIDÆ.

Halictus albescens Smith.—Several specimens were seen frequenting the flowers. Three more specimens of Apidæ were collected, one of which may be referred to the genus *Halictus*. All these belong to the group of 'flower-visiting' bees, whose habits are still not fully known. In this connection it may be remarked that *H. albescens* Smith shows a distinct fondness for the flowers of *Momordica charantia* Linn.

Fam. FORMICIDÆ.

The following species of ants, possibly attracted by the honey, have been collected in the flowers:—

Solenopsis geminata Fabr.—Only a few workers were collected. This ant is regarded both as a harvester and scavenger.

¹ Cf. Rep. Proc. 2nd Int. Meeting, Pusa, p. 303, 1917.

² Brunetti, E., Faun. Brit. Ind., Dipt. Brachycera, I, p. 83, 1920.

Fletcher¹ and Misra² record it as being harmful to *Cajanus indicus* in Mandalay, brinjal seedlings in Calcutta and coconut stems in Ratnagiri.

Monomorium latinode Mayr.—Numerous workers were collected.

Tapinoma melanocephalum Fabr.—Numerous workers were taken. Lefroy³ records the species as doing damage to young 'tur' plants, *Cajanus indicus*.

Prenolepis longicornis Latr.—Numerous workers were collected. This species was more abundant than the preceding.

3. *In Fruit.*

Order DIPTERA.

Fam. TRYPETIDÆ (TRYPANEIDÆ).

Chaetodacus cucurbitae Coq.—A few female specimens were noticed only in the evening time hovering about the fruit and inspecting them probably with a view to oviposition. Quite a number of the fruit were collected. Of these twenty per cent. were found to have been attacked; a few being infested with the living larvæ while the majority showed signs of their ravages. The larvæ equally relished both the ripe and unripe fruit. A few of the contaminated fruit were kept in the laboratory. The observations made are as follows:—

- 1st Lot—16. v. 33 .. Larvæ (evidently well-advanced).
- 22. v. 33 .. Pupæ.
- 27. v. 33 .. Adults emerged.
- 2nd Lot—31. v. 33 .. Pupæ.
- 8. vi. 33 .. Adults emerged.
- 3rd Lot— 6. vi. 33 .. Larvæ (evidently well-advanced).
- 13. vi. 33 .. Pupæ (all perished).

This fruit-fly⁴ has always been regarded as a serious pest of the Cucurbitaceæ and is reported to have been reared from the fruit of *Momordica charantia* Linn. Shiraki⁵ in recording this fly mentions *M. charantia* among the plant-hosts of the species. Lefroy⁶ has observed its complete life-cycle, which is said to occupy about 15 days; the larval period being between 3½ to 11 days and the pupal period between 10–14 days.

¹ Fletcher, T. B., Annotated List of Indian Crop-Pests, *Rep. Proc. 3rd Ent. Meeting, Pusa*, p. 34, 1919.

² Misra, C. S., Index to Indian Fruit-Pests, *op. cit.*, p. 576, 1919.

³ Lefroy, H. M., *Indian Insect Life*, pp. 229-230, Calcutta, 1909.

⁴ Cf. *Rep. Proc. 2nd Ent. Meeting, Pusa*, p. 304, 1917.

⁵ Shiraki, T., A Systematic Study of Trypetidae in the Japanese Empire, *Mem. Taihoku Imp. Univ.*, VIII, Entomology No. 2, p. 76, 1933.

⁶ Lefroy, H. M., *Manual of Entomology*, pp. 444-445, London, 1923.

Order HYMENOPTERA.

Fam. FORMICIDÆ.

Monomorium latinode Mayr.—Many workers were seen feeding on the substance of the ripe fruit. This species, as already stated, was observed on flowers also.

Rains of Fishes in India.¹

By SUNDER LAL HORA.

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INTRODUCTION.

The vagaries and ravages of the south-west monsoon of 1933 will be remembered for a long time in this country. Calcutta had a long rainy season and received over 20 inches more rain than usual. In several provinces torrential downpours and cloud bursts devastated vast areas. In Orissa, Central India, Delhi and the Punjab, the heavy floods absolutely disorganized, at times, all communications and caused considerable loss of life and property. With these reports, it has also to be mentioned that Assam and several other parts of the country recorded a heavy deficit in rainfall for the monsoon period. These abnormal conditions of weather have been responsible for several phenomena of interest and one of these has been the reports of fish falling from above with rains.

In the *Statesman* of September 14, Kim reported three rains of fishes as follows :—‘It rained fish in the Muzaffarpur district on July 11 and again on September 1. . . . my informant says :

“I have known this to happen once before in 1912, and on that occasion my tennis lawn and all the surrounding ground over a large area was literally white with small fish and maunds of them were picked up by coolies.”

The recent falls were not so big, but plenty of fish were to be had for the picking up. What is the explanation ? My correspondent suggests that the fish were sucked up out of a river by a water-spout and then discharged again during a heavy thunderstorm. The objection to this theory is best put by means of a

¹ A note on the Meteorological Aspects of the Rains of Fishes in India is given by Dr. S. N. Sen in a separate article immediately following this paper.

question. Where are the fish in the interval between the breaking up of the water-spout and the thunder-storm? What keeps them suspended in the air?'

After reading this note, I wrote to Kim requesting him to put me in touch with his correspondent. At the same time, I informed him that several cases of 'rains of fishes' have been recorded from different parts of the world and that the generally accepted theory is that the fishes after being taken up in water-spouts, are transported some distance by the heavy winds and come down with the rain. Kim made a reference to my letter in the *Statesman* of September 21, and remarked 'I can quite understand fishes being sucked up by a water-spout. What I can't understand is how the fishes are transported some distance without their weight bringing them to the ground immediately the forces which created the water-spout have dispersed. It seems to be a case for the physicist as well as for the zoologist. And what about falls of frogs, and that surprising thing the army experienced in Salonika, when the sky rained small turtles, so thick that it was impossible to move about without crushing two or three of them at every step!'

In the *Statesman* of the 26th September, Kim recorded another fall of fishes based on information supplied by a centurion, who saw fish fall from heaven in Jhansi in 1905. The rifle ranges, a long way from the water, had small fish rained on them:

'I had my company on the range that morning and a lot of men were rather shaken by it: at least I think that must have been the cause of the bad shooting that day.'

On September 21, I wrote to Kim about the action of thunder-storms, whirlwinds, water-spouts, etc., and requested him to throw further light on the fall of turtles in Salonika.

In the *Statesman* of the 29th September, Kim remarked that 'both' my correspondents say that fishes picked up by a water-spout are carried long distances by strong, vertical currents. It is not surprising at all they should be sustained in the air. Have I never heard of tornadoes lifting from the ground and transporting to a considerable distance trees, animals, human beings, houses and even railway trains? Dr. Hora mentions that in one case of a rain of fishes, the fishes were found in a comparatively straight path, only a few inches wide, but extending over a considerable stretch of country'.

In the *Statesman* of September 30, Kim published a vivid account of the ferocity of a tornado as observed by a scientist

¹ Kim's other correspondent was Officer-in-Charge, Meteorological Office, No. 1 (Indian) Group Headquarters, Royal Air Force, Peshawar (N.W.F.).

and referred to the fall of turtles as follows :—‘ It is quite possible that the turtles did not drop from the skies. The sudden terrific blizzard which was immediately succeeded by brilliant sunshine might have created the moist, heated atmosphere suitable to hatch multitudes of eggs buried just below the soil. This suggestion leads to the thought that perhaps these fish that appear miraculously after heavy rain belong to the type which, when rivers and pools have dried up, bury themselves in the earth, there to wait till the rivers and pools have water in them again. A heavy shower might induce them to think that the time had come for them to dig their way out. But before we go further with this theory it is necessary to find out whether the fishes that are supposed to have dropped from the sky belong to the same species that are accustomed to dig themselves in during a dry season. After all, fish is a big word. Are the fishes picked up after rain all of the same size and species? If so, what species?’

I informed Kim that the explanation based on vivification of æstivating species, though plausible, did not fit in with all the known facts. Moreover, the species that rained at Muzaffarpur represented both the æstivating and non-æstivating kinds. From the weather charts of the Muzaffarpur area for the days on which the fishes rained, it was clear that the meteorological conditions were responsible for the falls. But later Kim received another explanation of the phenomenon from one of his correspondents and published the following note in the *Statesman* of November 9 :—

‘ A Mozufferpore (*sic*) reader is rather sceptical about fish falling from the air. He thinks that the fish appear after heavy rain when roads and fields are under several inches of water. They merely swim out of tanks and streams, which have overflowed. When the waters recede, the fish are left stranded. We saw how easily fish are stranded several times in Mesopotamia. When high winds blow over the marshes, they drive the waters over the flat land exactly after the manner of tides. When the winds cease the waters recede leaving behind them multitudes of fish generally lying along the furthest point they reached. These fish, very white in colour, show up like a gigantic semi-circle drawn in chalk. . . . This letter, of course, does not entirely dispose of the theory that fishes can be sucked up by water-spouts and later discharged from the sky. Still, I would like to have a statement from somebody who has actually seen fishes fall or can affirm that he has found them after a heavy shower in places which were not actually flooded and which they could not reach from flooded tanks or streams.’

In response to his enquiry, Kim received replies from three persons and these he referred to in his notes published in the *Statesman* of November 22, as follows : ‘ One letter refers me

to another man who has seen two falls of fish and the other man is a trustworthy and reliable witness. A second correspondent can speak of being an actual witness of three falls, and all in the same district, Muzaffarpur. On one occasion, during the visit of a well-known and previously sceptical scientist, several small live fishes fell on the raised *chabutra* of the old planters' club and were bottled by him and sent to South Kensington. On the second occasion fishes were found on the roof in an open iron reservoir the base of which was corroded through and could not hold water. On the third occasion two small fish were found in a galvanized bath-tub put under the eaves of the roof to collect rain water. And what about the following experience ?

'When a boy, and in Dum Dum, I was caught in the rain not far from home, when suddenly I felt I was being struck on the topee as if by hail-stones, but to my surprise found them to be fishes. I remember it too well and I also took a topeeful to my mother, more because of the surprise than as a proof of my story. The largest fish I think was about three inches long.'

Mr. G. T. Gill, to whom we are indebted for an account of the two recent falls of fishes in the Muzaffarpur District, has also written to Kim (*Statesman*, Nov. 24, 1933) to say that 'The theory as to the presence of fish swimming on to the roads and lawns from overflowing tanks is quite untenable, and in my case there were no such tanks anywhere near my garden, and every single coolie I asked said to me, "*Upar sé aya* "' (came from above).

Another correspondent of Kim records (*Statesman*, 1st December, 1933) that 'while a boy at school, between 1870 to 1879, at St. Mary's Institution, Byculla (Bombay), he on several occasions picked up small silvery fish in the centre of the playground after heavy showers of rain. Several of the other boys stated they actually saw fish falling'. Much more interesting is the account that appeared in the *Statesman* of Dec. 3, 1933. In 1905, one of Kim's correspondent was walking between Khargpur and an estate on the Maurbhanj side. 'All of a sudden a downpour of heavy rain came on and on looking down I found the fields all alive with small fish. . . I took a palki-bearer's umbrella. opened it, and turned upside down, and, lo and behold, it filled up with these same fish. A few minutes afterwards a shower of frogs descended into this handy piece of furniture, and the fields, too, were alive with both frogs and fish. Such are the facts.'

I have quoted from Kim's notes in the *Statesman* at some length, firstly, because they show the scepticism with which this phenomenon is regarded by the general public and, secondly, because they show how attempts are usually made to explain the falls of fishes and other animals by such processes as may eliminate the possibilities of animals having fallen from above.

The various explanations of the rains of fishes put forward in Kim's notes are discussed below (pp. 105-109).

PARTICULARS OF THE RAINS OF FISHES HITHERTO RECORDED FROM INDIA.

It is undoubtedly true that every fall of fishes that occurs is not recorded, but the phenomenon is sufficiently unusual and striking to have attracted the attention of a number of scholars, who have recorded their observations. Gudger¹ has brought together all references, so far as possible, to rains of fishes up to 1929 in two illuminating articles. He concludes that 'The seventy-one² records here quoted of rains of fishes from fifteen countries (counting England, Scotland, and Wales as one country—Great Britain) encircling the globe, their time-limits covering the two thousand years from Athenæus (circa 200 B.C.) to McIlheny (1921 A.D.) leave no ground for doubts as to their occurrence, or for belief that one writer was influenced by another. And for these "rains" the explanation uniformly given (and the only one tenable) is that of the whirlwind or water-spout.' Early Greeks were aware of the universally spread belief of the fall of fishes in India and later Hamilton,³ Grant⁴ and Day⁵ recorded this belief in their writings without making any reference to a definite fall of fishes observed by them. Gudger, in 1921, gave an account of 10 records of rains of fishes from India, and these may be tabulated as on the following page.

¹ E. W. Gudger, Rains of Fishes, *Natural History*, XXI, pp. 607-619 (1921); More Rains of Fishes, *Ann. Mag. Nat. Hist.*, (10), III, pp. 1-26, pl. 1, 2 text-figs. (1929).

² Norman in his *History of Fishes*, p. 430 (London: 1931) gives more records of the rains of fishes.

³ F. Hamilton (formerly Buchanan), '*Gangetic Fishes*', pp. 68, 99 (Edinburgh: 1822).

⁴ C. W. Grant, On the Fact of Small Fish Falling during Rain in India. *Papers Corps Royal Engineers of Great Britain*, London, II, pp. 209-213, fig. (1838).

⁵ F. Day, *Fishes of India*, p. 363 (London: 1876). Day makes reference to the fishes descending with downpours of rain in several of his earlier works, especially in his reports on the Freshwater Fish and Fisheries of India and Burma.

For still more recent literature see Vinton, A Rain of Fishes, *Nat. Hist.*, XXXIII, pp. 555-556 (1933), Gudger, Do Fishes Fall from the Sky with Rain?, *Scientific Monthly*, XXIX, pp. 523-527, 5 figs. (1929), and Deraniyagala, A rain of fishes, *Ceylon Journ. Sci.*, XVII, pp. 43-44 (1932). Deraniyagala's paper contains references to other rains of fishes in Ceylon.

The table given below shows that the last rain of fishes recorded in scientific literature from India is that which occurred at Poona in 1852. Several rains of fishes¹ have been

Date or year	Locality	Type of fish	Observer or recorder
1809 ..	'Kattywar'	?	Hariott (Sykes, <i>Rep. Brit. Ass. Adv. Sci.</i> , 10th meeting, p. 40, 1840).
1824 ..	Meerut ..	?	Buist (<i>Bombay Times</i> for 1856; Littell's <i>Living Age</i> , 1857).
20th July(?), 1829.	Moradabad	'A small species of <i>Cyprinus</i> , two inches and a quarter in length, green above, silvery white below, with a broad lateral band of bright red.'	Mrs. Smith (<i>Trans. Linn. Soc. London</i> , XVI, p. 764, 1833).
19th February, 1830.	Nokulhatty Factory, Jelalpur, Zilla Dacca.	<i>Bodulis</i> , <i>Saul</i> , <i>Sale</i> , <i>Guzal</i> and <i>Nouchi</i> .	Cameron (Prinsep, <i>Journ. As. Soc. Bengal</i> , II, pp. 650-652, 1833).
1833 ..	Benares ..	?	Prinsep (<i>op. cit.</i>).
16th or 17th May, 1834.	Fattchpur	Chelwa (<i>Clupea cultrata</i>).	'S' (<i>Journ. As. Soc. Bengal</i> , III, p. 367, 1834).
1835 ..	Allahabad	?	Buist (<i>op. cit.</i>).
20th September, 1839.	Sundarbans	?	Thompson (<i>Introduction to Meteorology</i> , pp. 162-164, 1849; Buist, <i>op. cit.</i>).
25th July, 1850.	'Kattywar'	?	Buist (<i>op. cit.</i>).
1852 ..	Poona ..	?	Buist (<i>op. cit.</i>).

¹ A correspondent from Patna writes that at about 1 p.m. on the 9th November, 1933, a bright and sunny day, when travelling about a mile south of the Gandak Bridge, he noticed a flock of 20 to 30 kites circling over his head. At the same time he noticed silvery objects in the sky which the kites picked up with a sweep as they dropped down. This lasted for 2 to 3 minutes and my correspondent thinks that the silvery objects must have been fishes raining from above.

A gathering of hundreds of kites higher up in the sky is not an unusual occurrence in any part of India, but the falling of silvery objects is certainly uncommon. It is very difficult to say what these objects were, but they could not be fish. As is explained later (p. 107), the fish are carried up and transported by water-spouts and fall from the sky with torrential rain when the water-spout dissipates. In the circumstances it seems difficult to believe that fish were raining on November 9,

referred to in Kim's notes quoted above, but the three rains of fishes recorded in the first note deserve further consideration as I have been able to obtain full particulars from Kim's correspondent.

RECENT RAINS OF FISHES IN THE MUZAFFARPUR DISTRICT.

(i) Mr. G. T. Gill observed a rain of fishes at Bunhar Factory, District Muzaffarpur, in 1912. Bunhar Factory, I am informed, no longer exists, but it was situated on the bank of the Baghmata River midway between Darbhanga and the large village of Rusera. Mr. Gill writes that the date has completely escaped his memory, except that it was some time during the monsoon, and in the middle of the day. With reference to the 1933 falls, he writes: 'These falls were, however, nothing as compared with the one which occurred at Bunhar Factory in 1912, where I then was, I actually observed this with my own eyes, that is to say that when the rain was actually falling I did not notice fish coming down with it, but the rain, which was very heavy, ceased very suddenly, just like the rain on the 10th July last, and when it did, my tennis lawn and the road in front of the bungalow were simply white with maunds of fish, so much so that at first, before I went outside to investigate the matter, I thought it must be hail lying on the ground. To my amazement I saw it was fish. They were also all over the indigo factory which was one-third of a mile from the bungalow. None of the fish were of any size, none of them being more than two inches long.'

(ii) Mr. G. T. Gill observed a rain of fishes at Bhicanpur Factory, due four miles north of the small Gundak River on the main road to Sitamarhi, in the Muzaffarpur District. He writes: 'I had tremendous rain here at that time, my falls that I registered being as follows:—9th July, 0.68; 10th July, 4.18; 11th July, 6.78. The rain I have written down as having fallen on the 11th, really all fell on the 10th, and the reason for that is that I always measure the rainfall for the 24 hours ending on the morning of the day I write it down. Actually this fall of 6.78 inches ended on the 10th about 2.30 P.M. I was waiting for the rain to moderate, and when it did I heard *lathi* and stick blows all over the garden, so, being curious, I went out in the rain before it had ceased to investigate the matter, and the cause was that all my garden coolies and syces, and many other coolies were killing the fish as they swam all over the garden paths and the road down to the

near Patna on a bright, sunny day. Dr. S. N. Sen informs me that the weather conditions over Bihar were not favourable for the formation of water-spouts on that day. However, the observation is recorded here to elicit further information on the point raised by my correspondent.

stable. The fish must all have come down during the final shower which was tremendously heavy. Every single coolie whom I asked how he accounted for the fact of fish being over the garden said, *oopar se aya* (came from above), and there is no doubt whatever that they had'. On getting this information I requested Mr. Gill to send me the local names of the fishes that came down with the rain and, if possible, specimens of the various species. I also enquired about the principal stretches of water in the vicinity of the factory. To these questions I received the following replies :—

'I have asked my chowkidar (watchman) what were the names of the various kinds of fish which fell here on the 10th July at 2-30 P.M., and he at once told me as follows, and I am quite sure he was telling me the truth, as he himself was one of those who benefitted by the fall, and I saw him pick up a large quantity. The vernacular names of the varieties are : (1) *Gainchi*, a thin fish, 3 inches in length. Grows to one span in length ; (2) *Potia*, a broad fish which grows to about two inches ; (3) *Garaye*, a fish with a large mouth, growing up to 3 inches in length ; (4) *Darwa*, a small fish hardly exceeding 2 inches ; and (5) *Chelwa*, a table delicacy for Europeans and Indians alike. When fried they taste exactly like white-bait which they greatly resemble in appearance. A very well-known species. All the above kinds of fish are obtainable locally in the Bazar on any market day here.' The scientific names of the species were determined from a small collection sent by Mr. Gill and are given below on the following page.

As regards stretches of water, Mr. Gill wrote that 'the occurrence took place on the top of a very rapidly rising flood, and practically the whole countryside was under water at the time, though, after the heavy rain ceased, which it did with the fall which precipitated the fish, the flood rose a good deal higher. In addition the small Gandak River is close by, also the Baghmatti is only 5 or 6 miles away in a northerly direction, and there is a large jheel (lake) 4 miles north of this bungalow which is always full of water, even in the hot weather. My chowkidar assures me that the fish fell over a large area, which I have calculated, as far as my knowledge goes of the extent of the fall, as being 60 square miles, but it may have been much more, and I was told by a lady that fish fell in her garden on the same day in Muzaffarpur itself.'

(iii) On the 30th of August, 1933, Mr. Gill observed coolies getting fish out of a small and shallow drain by the roadside close to his house, immediately after a shower of rain, and when he asked them how they expected to catch any fish in such a small quantity of water they all replied again '*oopar se aya*' (came from above).

Among the menial staff employed in the Indian Museum there are several people who come from the Muzaffarpur District.

They heard from their friends and relatives about the falls of fishes, but treated the matter as a mere joke. On my making enquiries from some of these people, who were on leave during the monsoon period in their villages, I have been able to collect corroborative data. One man named Ram Avatar Singh of Khalilpur village has informed me that he reached his village on the 11th of July and heard that on the day previous there was heavy rainfall accompanied by a fall of fishes from the sky. During his stay in the village he witnessed two falls of fishes, one in the middle of the Hindu month *Śravan* (16th July to 15th August) and the other in *Bhadon* (16th August to 15th September). On both these occasions, an exceptionally heavy rainfall was preceded by storm, whirlwinds, etc. and the rain fell from 10 A.M. to about 7 P.M. and water accumulated in the streets knee-deep. When the rain stopped, he found the courtyard of his house full of fish and on coming out he saw silvery objects on the thatched roof, which on close inspection turned out to be *Chelwa* fishes. Among the fishes collected, he mentioned the names of all the kinds stated above in Mr. Gill's account, but he added the name of a small loach known as *Natua*. Reports of the rains of fishes have been received from the inhabitants of the following other villages in the Muzaffarpur District :—Karja, Dwarkapur, Anantkarja, Bhadawna, Bhopalpur and Mohatpur. A man of the Parsagarh village in the Chapra District of Bihar and not very far from Muzaffarpur has also told me of a rain of fishes in his village. I am informed that *Potia* and *Darwa* rained in great abundance. Some of the villages, where the fish rained, have no ponds, lakes or rivers in their neighbourhood, and the phenomenon, therefore, excited great interest among the villagers. They attributed the falls to the miracle performed by the all-pervading and powerful god Indra. I shall have occasion to refer to the beliefs of these simple people later (p. 108).

SPECIES OF FISH KNOWN TO HAVE FALLEN WITH RAINS IN INDIA.

It has been mentioned above that Mr. G. T. Gill sent me specimens of five species of fish that he found in the compound of his bungalow after a heavy fall of rain. These have been identified as follows :—

LOCAL NAME.	SCIENTIFIC NAME.
1. <i>Gainchi</i>	.. <i>Mastacembelus pancalus</i> (H.B.).
2. <i>Potia</i>	.. <i>Barbus (Puntius) sophore</i> (H.B.).
3. <i>Garaye</i>	.. <i>Ophicephalus gachua</i> (H.B.).
4. <i>Darwa</i>	.. <i>Esomus danricus</i> (H.B.).
5. <i>Chelwa</i>	.. <i>Chela bacaila</i> (H.B.).

Ecologically, these species can be grouped under two main categories. *Mastacembelus* and *Ophicephalus* live in mud, are capable of living out of water for a considerable time and are known to aestivate during the hot and dry months. The other three kinds, *Barbus*, *Esomus* and *Chela*, are essentially surface fishes, though *Barbus sophore* may be found at the bottom. I enquired from Mr. Gill the proportion of the various species in the rains of fishes witnessed by him. He writes, 'As far as my personal observation went (which was not very much as it involved paddling about and getting my feet very wet which I soon tired of) I should have said that the greatest number of fish were *Garaye*, but my bungalow chowkidar, whom I just asked, says that by far the largest proportion was *Potia*, and no doubt he is right. The *Garaye*, however, were specially noticeable owing to their large size and reddish colour in the water. I should say, therefore, that the largest number were the *Potia*, then possibly I should put the *Garaye*, though I may be wrong, and the *Gainchi*, *Darwa* and *Chelwa* third'. From the accounts of my other informants, I gather that the greatest proportion of the fish that rained were of the *Potia*, *Darwa* and *Chelwa* types. *Natua*, a fish that is said to have fallen with rains in the Muzaffarpur District, is the dirty loach, *Lepidocephalichthys guntea* (H.B.), which is similar in habits to *Mastacembelus* and *Ophicephalus*.

It is thus seen that half of the species associated with the recent falls of fishes are surface-living, small forms, which could be easily sucked up with water-spouts. The presence of three aestivating mud-fishes in the falls does not show that they had been awakened from their summer sleep by the heavy downpour. Aestivating fishes of India become active after the first few monsoon showers which commence about the second half of June, so at the time when the falls of fishes are stated to have occurred they must have been fully revived. To me, the presence of mud-fishes in the falls seems to provide evidence of the great force of suction produced at the time of water-spout formation—so much so that the bottom mud of ponds, lakes or rivers is also sucked up along with the entire volume of water at the particular place. Recently a rain of small Gobioid fishes has been reported¹ from Christobal Canal Zone (America). These fishes possess powerful ventral suckers with which they adhere to rocks in swift currents of small streams in oceanic islands.² It should be clear from these instances, that the presence of mud-fishes in the falls can be accounted for only by the water-spout and whirlwind theory of the rains of fishes.

¹ Vinton, Rains of Fishes, *Nat. Hist.*, XXXIII, pp. 555-556 (1933).

² Hora, Gobioid Fishes of Torrential Streams, *Acharya Ray Commemoration Volume*, pp. 92-99 (1932).

In 1829, 'A small species of *Cyprinus*, two inches and a quarter in length, green above, silvery white below, with a broad lateral band of bright red' is stated to have rained at Moradabad. The description is applicable to a number of Cyprinid fishes, but it is likely that the fish belonged to the genus *Rasbora*, which comprises surface-feeding species. In 1834, *Chelwa* rained at Fattehpur and this appears to be the same fish as *Chela baicala* referred to in the account of the Muzaffarpur fishes. In the Dacca District, in 1830, a number of species are recorded to have fallen with rains and it has been possible to identify all the species from their vernacular names. The following note regarding them may be useful:—

1. *Boduli* or *Bodulis*:—These names probably refer to *Vadāla* (वदाल), 'a kind of *Silurus* or sheat-fish'.¹ As is indicated in the note from the Collector of the Dacca District (*vide infra*), this name is no longer in use. It is a word given in native lexicon and not yet met with in any published text.

2. *Mirgal*:—This is the common *Cirrhina mrigala* (Ham. Buch.) which is esteemed as food and is used for stocking ponds in Bengal.

3. *Saul* and *Sale*:—These two names probably refer to the same species—*Ophicephalus striatus* Bloch. It is known in Eastern Bengal as *Shal*, *Sal* or *Shaul*.

4. *Guzal*:—This is probably the same as *Gajal*, *Gajar* or *Shal*. These vernacular names refer to *Ophicephalus marulius*.

5. *Nouchi*:—I have not been able to trace this name, but if N is a misprint for M, then we have a fish known as *Mouchi* in Eastern Bengal. It is *Amblypharyngodon mola* (H.B.) which is not much esteemed as food.

It seems that the 10 witnesses, whose statements were recorded about the rain of fishes in the Dacca District, paid attention only to larger specimens for all the species mentioned above, with the exception of the last, grow to a fairly big size. The smaller species seem to have been overlooked altogether. There must have been a very strong water-spout to have sucked up fishes of the size, one cubit in length and 6 lbs. in weight, stated to have been collected by these witnesses. Moreover, not one of these species is a surface-feeding form. In fact, *Wallago* and *Ophicephalus* are bottom-dwelling species, whereas the other two generally live among vegetation near the bottom and occasionally come to the surface.

Enquiries were made from the Collector of Dacca regarding the local names *Boduli* and *Nouchi*. In reply he has written to say that 'the fishes *Boduli* and *Nouchi* cannot be identified. The local names of fishes vary to a great extent, the same fish being called by different names in different parts of the same district. As far as I have been able to ascertain on enquiry

¹ Monier-Williams, *A Sanskrit-English Dictionary* (Oxford : 1899).

the names *Boduli* and *Nouchi* resemble the names of *Boali* and *Baichi* or *Baicha* which are well-known fishes. It is possible that these well-known names may have been corrupted into *Boduli* and *Nouchi*.

Boali (*boali* of Eastern Bengal; *boil* and *boala* of Chittagong; *barali* of Assam; etc.) is the well-known cat-fish popularly known as the freshwater shark. It grows to an enormous size, up to at least six feet in length. I am inclined to agree with the District Collector of Dacca that *Boali* is the same fish as *Boduli*. The fish is known among ichthyologists as *Wallago attu* (Bl. and Schn.). *Pseudeutropius atherinoides* (Bloch) is a small species which is known as *Bodua* in Eastern Bengal. The reference in the Dacca fall of fishes cannot be to this species as specimens of *Boduli* about one cubit in length and 6 lbs. in weight were picked up by the local people.

Baichi or *Baicha* (*bacha* of Eastern Bengal) refers to *Eutropichthys vacha* (H.B.) which is a common fish at Dacca, but I do not see any similarity between these names and *Nouchi*. I am inclined to regard *Nouchi* a misprint for *Mouchi* as indicated above.

EXPLANATION OF THE RAINS OF FISHES.

Gudger (*op. cit.*, 1921 and 1929) has already discussed the various explanations that have hitherto been advanced to account for the rains of fishes and has come to the conclusion that 'for these "rains" the explanation uniformly given (and the only one tenable) is that of the whirlwind or water-spout'. The analysis of the meteorological data concerning the recent rains of fishes at Muzaffarpur has led Dr. S. N. Sen to the same conclusion (*vide infra*, pp. 111-116), but in view of the matter that has appeared in Kim's notes, it seems desirable to review in somewhat greater detail the popular explanations of the phenomenon.

Leaving out of consideration the explanation sometimes given of the dormant eggs hatching out after a heavy rainfall as highly untenable, attention may be directed to four other explanations that have found currency in literature.

1. *The fishes supposed to have fallen with rain might have been migrating overland from one stream or pond to another.*

Of the species of fish that are known to have fallen with rains in India, *Ophicephalus* is the only kind that migrates overland. The other fishes such as *Wallagu*, *Barbus*, *Esomus*, *Chela*, *Cirrhhina*, *Amblypharyngodon*, *Barilius*, *Lepidocephalichthys* and *Mastacembelus* are not known to leave water and wander about. The last two kinds are amphibious in their mode of respiration, whereas the others are purely aquatic-breathers. Gudger (1921) has remarked that 'many of the falls have taken place in northern countries, where there are no migratory fish,

and finally many of the fish rained down are marine forms'. In view of the above, this explanation is ruled out of further consideration.

II. *The fishes might have been left behind by overflows* in the manner indicated by Kim's correspondent or as alleged by Eglini long ago (*Wittenbergischen Wochenblatt zum Aufnehmen der Naturkunde*, pp. 329-330, 370, 1771).

I am fully aware of the fact that after heavy floods fishes are left stranded on the banks of rivers. This often happens in the high lands of Central Asia, and I have received collections of such stranded fishes from Tibet and Chitral. The details that are available in connection with the rains of fishes do not lead one to the conclusion that the fishes had been left behind by overflows. The rains of marine fishes many miles inland from the sea, the falls on high lands or roofs of houses far out of the reach of floods, the falls of fishes in places with no stream, lake or pond in their neighbourhood, the localized occurrence of these falls, especially the falls in the Sundarbans and Burdwan where fishes were found in a comparatively straight path only a few inches wide, extending over a considerable stretch of the country and the occurrence of the bottom, mud-dwelling or stone-sucking (*Gobiidæ*) species in the falls clearly show that the above explanation cannot apply to such occurrences. Reference may also be made to the account of the three witnesses mentioned by Kim.

III. *The fishes may have been æstivating and have been awakened by the coming of the rain.*

Gudger has already given reasons to show that this explanation cannot apply to the reported rains of fishes from countries all over the world. The recent rains of fishes in Muzaffarpur occurred during July and August when even the æstivating species are active, for it is well known that these fishes become vivified after a first few monsoon showers which occur usually in the second half of June. Moreover, the majority of the fishes known to have rained in India belong to the non-æstivating type.

IV. *The rains of fishes are due to the action of heavy winds, whirlwinds and water-spouts.*

In the accompanying diagram (fig. 1), I have indicated the places in India whence the rains of fishes have been recorded so far including those given in this paper. It will be seen that the part of the country below Nepal, from Muzaffarpur in the east and Meerut on the west with Jhansi, Allahabad and Benares forming the southern boundary, is the most suitable area for the occurrence of these rains. Dr. Sen shows that over this area the heavy winds of the south-west monsoon come in contact with the cold north-easterly winds of the Himalayas, and it so happens that portions of the Bay winds are sometimes enclosed between the cold winds and these in trying to escape

upwards in the form of strong, vertical currents cause whirlwinds and water-spouts. Water-spout formation is a fairly frequent occurrence in Northern Bihar, and has been responsible for the popular belief¹ that Airāvata, one of Indra's elephants, sucks up water from the earth by means of its trunk. The similarity in the funnel-like form of a water-spout and that of the trunk of an elephant is very suggestive to the minds of the simple village folks.

The Kathiawar area and the region of the Gangetic Delta also seem suitable localities for the falls of animals, and Dr. Sen shows how sometimes the meteorological conditions over these areas induce the formation of water-spouts. The falls at Poona and Byculla have to be regarded meteorologically as exceptional occurrences. In other parts of India where the north-easterly Himalayan winds have no access, the chances of the water-spout formation, and the consequent falls of animals, are very remote. Most of the rains of fishes have occurred during the monsoon months—July, August, and September—but an exceptionally big fall of fishes has been reported from Dacca (*vide* table on p. 100) in February and from Fattehpur in May. Both these months fall within the nor'wester period, during which water-spout formation may occur wherever and whenever light air gets enclosed between cold and heavy winds.

There are two other facts concerning the falls of fishes which may be mentioned. So far as it has been possible to ascertain, the falls are said to have occurred about the middle of the day and the fish precipitated with a final, heavy shower. Dr. Sen shows from a study of the meteorological conditions that this is what it should be. It is thus seen that all the problems associated with the falls of fishes in India are capable of simple meteorological explanations. I am greatly indebted to Dr. Sen for his kind help and valuable suggestions, and above all, for his contribution on the meteorology of the recent rains of fishes at Muzaffarpur.

In connection with the action of whirlwinds and water-spouts, Mr. Johan van Manen has directed my attention to two interesting passages in Peddington's 'The Sailor's Horn-book'. For instance, it is stated that 'The mischievous kinds of these whirlwinds seem to be nothing more than those just

¹ It may be worth while to say a few words here to explain this mythological belief among the Hindus. A reference to Hopkin's *Epic Mythology* (Strassburg: 1915) will show that Indra is worshipped as a great benefactor and rain-god of the Hindus. The clouds are believed to be Indra's elephants on which he rides about in his tours of the world. One of these elephants, Airāvata by name, rose at the churning of the ocean and was seized by Indra. This animal, sometimes known as Airāvāṇa, draws up water from the under-world and Indra seated on his elephant pours down the rain. The chief gift of Indra is the rain he gives to all. The elephants are also believed to blow the wind out of their trunks.

described, but of force enough to destroy houses and men, uproot trees and even to tear, break and throw down buildings, and they may be traced, in accounts from various parts of the world as well as in India, of all sizes; from a few feet up to some hundred yards in diameter, and as occurring in all kinds of weather, and by night as well as by day. *Many of these also in passing brooks or ponds, have been known to assume the appearance of water-spouts for the time, and to raise up the water and even the fish with it* (1st ed., p. 264; 2nd ed., p. 240. The italics are mine). The sucking up of fishes by the action of whirlwinds is again referred to as follows: "We have seen that whirlwinds on shore, certainly so far resemble water-spouts, that they lift water and fish. There is equally no doubt, that when sea water-spouts reach the shore, they become whirlwinds." (1st ed., p. 270; 2nd ed., p. 245).

The late *Jamadar* of the Asiatic Society of Bengal, an inhabitant of the Ballia District, U.P., informed me that whirlwinds are a common feature in his part of the country and that he had himself witnessed the water of a tank in his village being sucked up by one of Lord Indra's elephants. No water or fish were left in the tank afterwards. In this district, people are fully aware that sometimes fishes fall from the sky with rains. Ballia is to the south-west of Muzaffarpur, but not very far from it. Thus it is within the area of special weather conditions which induce the formation of water-spouts.

Dr. J. N. Mookherjee, Professor of Chemistry in the University of Calcutta, informs me that some years ago there was a rain of fishes near his village in the Burdwan District. The fish did not fall all over the country but were found in a long, narrow and fairly straight row over a considerable stretch of the country. The nature of this rain is comparable to that which fell at the Sundarbans on September 20, 1839.¹ As has been indicated by Gudger² 'These fishes must have fallen from the whirling lower end of a funnel-shaped spout after the pillar had broken in two, as is often the case'.

ADDENDUM.

Since the above was sent to press, Kim has reported two further falls of fishes in the columns of the *Statesman*. Mr. James Dewar, at one time Manager of the Patrakala Tea Co. in Sylhet, informed Kim that one late afternoon during the late Spring of 1913, just when the chota barsat was breaking, 'The coolie women were plucking leaf about a hundred yards from the edge of a dried up bheel and the nearest stream was about half a mile away. The ground was generally hard and dry as usual at

¹ Buist, Rains of Fishes, *Bombay Times* for 1856.

² Gudger, Rains of Fishes, *Natural History*, XXI, p. 619 (1921).

the end of the cold weather. In looking over the quality of the leaf in the baskets of the pluckers, Mr. Dewar noticed two or three small fish in the basket of one woman. She explained that she had found them on the ground and added that quite a number had been found by other pluckers. Mr. Dewar was not

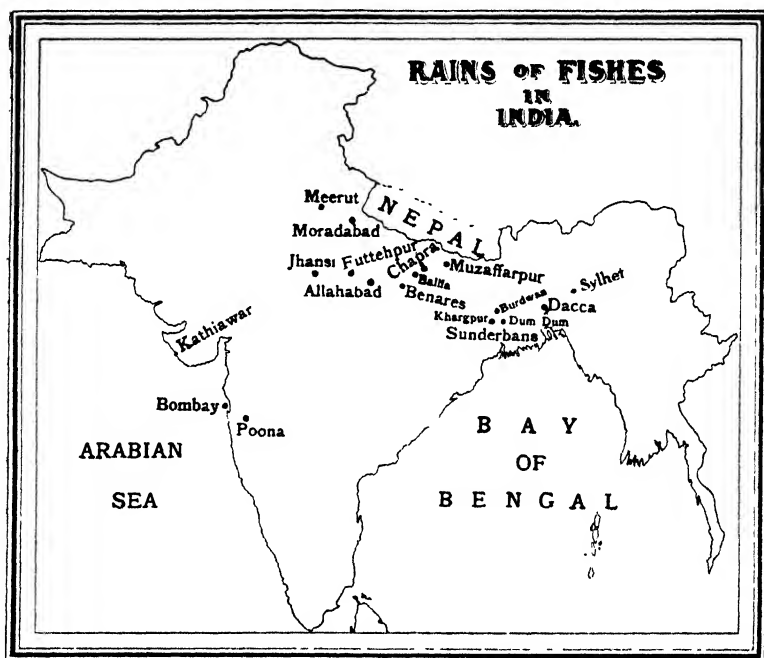


FIG. 1.—Rains of Fishes in India.

quite convinced and himself made a search for fish and actually found a number under the bushes over a line of about 200 yards.'

'The fish were from six to seven inches in length, wriggling, glistening, and very much alive and looked very edible. The "happening" took place just after a slight drizzle of rain. It intrigued me greatly and I have no hesitation in saying that the fish were not placed where they were found by any human agency' (*Statesman*, January 26th, 1934.).

The second record is furnished by Mr. A. Barbour of Titaghur who wrote to Kim as follows:—

'At Uttar-Tirhut, 10 miles east of Muzaffarpur, in 1906, along with another man, I saw a dry road (an inch above the level of the country round about) become covered by a shoal of tiny fish which arrived in a sudden rain-storm' (*Statesman*, February 20th, 1934.).

Mr. Dewar's observation is probably the first on record which shows that a fall of fishes was not accompanied by a heavy shower.

The Meteorological Aspects of the Recent 'Rains of Fishes' in the Muzaffarpur District.

By S. N. SEN.

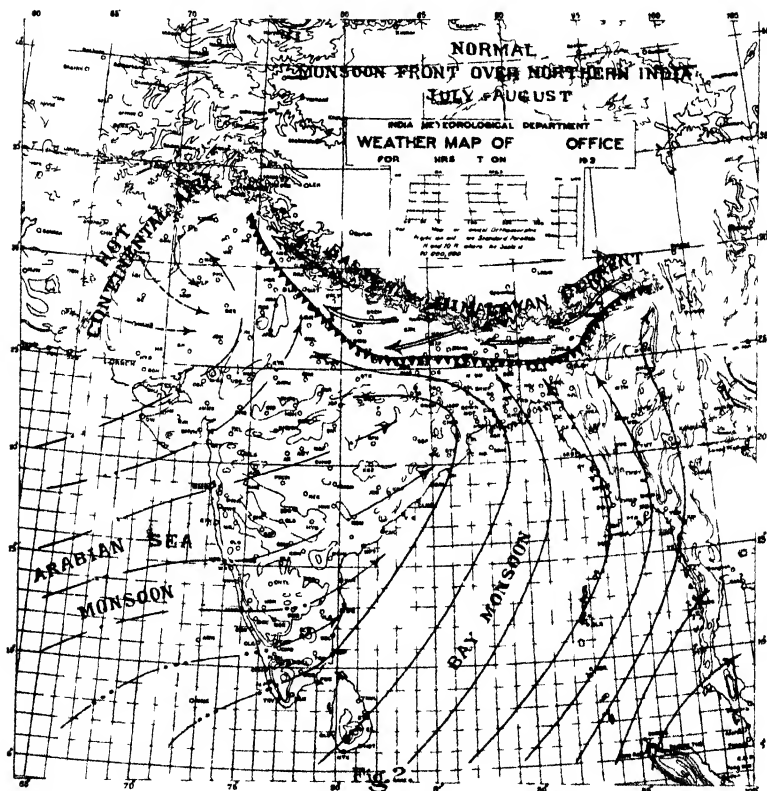
In connection with the rains of fishes observed on the 10th July and 30th August, 1933, in the Muzaffarpur District, Bihar, Dr. Hora of the Zoological Survey of India asked me to explore the possibility of a meteorological explanation. I have looked up the weather charts of the dates mentioned and find that typical nor'wester conditions (*vide* p. 83 of the *Proceedings of the Indian Science Congress, Nagpur, 1931*) were established over Bihar on both the days. As a matter of fact widespread thunderstorms were successfully forecasted by the Alipore Observatory on both the occasions.

The Monsoon Front.—Before proceeding to a meteorological explanation of the particular instances cited by Dr. Hora it may be an advantage to discuss Fig. 2 which shows the normal distribution of the various air currents over India at the height of the monsoon season.

So far as the monsoon air trajectories are concerned the diagram is essentially the same as that given by Hann. The only modification that has been introduced is the identification and distribution of the various air masses over the Indian continent in the monsoon season. These are the easterly air current at the foot of the Eastern Himalayas and the hot air over the Punjab and the N.-W.F. Province. The mode of representation of the various air currents is the same in Figs. 2, 3 and 4. The boundary line between the two branches of the Indian monsoon current and the Eastern Himalayan current is shown by a toothed line. This line will be referred to later as the line of discontinuity or the monsoon front. Even in the absence of pure monsoon air the same type of front may be established over Northern India in other seasons also but the details need not be discussed here. Provisionally the diagrams in this paper may be taken to represent the average conditions from the ground up to 0.5 km. level.

Occlusion of the Bay air.—The Himalayan current usually comes down as an easterly or north-easterly current mainly along the Brahmaputra Valley and travels westwards along the foot of the Himalayas. It is cooler and therefore heavier than the southerly Bay current. Consequently there may start separate streams from the parent Himalayan current and flow down approximately southwards mainly under the action of gravity along river beds or at right angles to the prevailing horizontal temperature gradient. In the circumstances when two Himalayan air streams coalesce a portion of the warm and

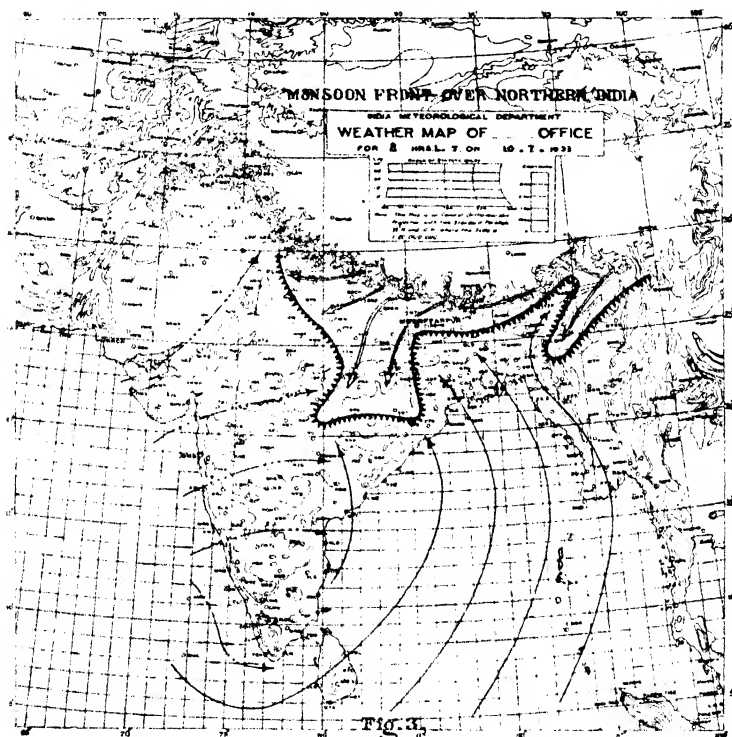
moist Bay air is likely to become isolated within the Himalayan air mass. When this type of isolation or 'occlusion' of the Bay air occurs, whirls in the atmosphere are likely to be formed (*vide Nature*, January 1931, p 128). In favourable circumstances these whirls may give rise to water-spouts. In the nor'wester season, *i.e.*, from February to June, these whirls often develop into tornadoes. As a matter of fact, descriptions of corrugated iron roofs being lifted and carried many miles away, appear in the newspapers almost every year.



especially in the nor'wester season. This fact gives an idea of the magnitude of the tremendous lifting forces inside a strong whirl. It seems, therefore, probable that if a whirl forms over a pond or river then the fishes may be easily lifted and carried away and thrown down when the whirl begins to dissipate.

The Daily Weather Charts suggest that at the height of the monsoon season, wide scale subsidence of the Eastern Himalayan air often takes place over Bihar through the valleys

of Nepal, possibly mainly along the course of the river *Kosi*. Whatever the details of the process may be, it is a fact that the Eastern Himalayan air generally accumulates over Bihar and the United Provinces north of the toothed line in Fig. 2 and then again subsides towards the Central Provinces. It is during this subsidence that the occlusion of the Bay air very often occurs giving rise to locally heavy rainsqualls. The frequency of the whirls should naturally be large near about the normal line of discontinuity as shown in Fig. 2. A remarkable confirmation of this view is provided by Dr. Hora's chart



(Fig. 1)¹ in which the regions of frequent occurrence of the rains of fishes are shewn to be the United Provinces and Bihar. The places of occurrence are just to the south of the toothed line in Fig. 2 which is based on purely meteorological considerations and drawn independently of Dr. Hora's diagram.

It may be interesting to note here that the Eastern Himalayan current has an uncanny power of giving rise to weather wherever it meets another air mass. The Daily

¹ *JPASB*, (N.S.), XXIX, 1933, p. 110 (1934).

Weather Charts shew that the Eastern Himalayan air frequently travels long distances over the Indian continent and the Bay of Bengal. Under the influence of the Bay depressions it often penetrates South India and with the westward travel of the depressions this air mass finds its way into Gujrat. The isolated occurrences of rains of fishes in other parts of India as shewn in Dr. Hora's chart may, therefore, be explained on the same basis as has already been indicated.

Meteorological Conditions over Bihar on the 10th July, 1933.—

With the introductory remarks in the preceding paragraphs it is now proposed to consider in detail one of the two cases, viz., the rain of fishes which occurred at Bhicanpur in the Muzaffarpur District at 2-30 P.M. on the 10th July, 1933.

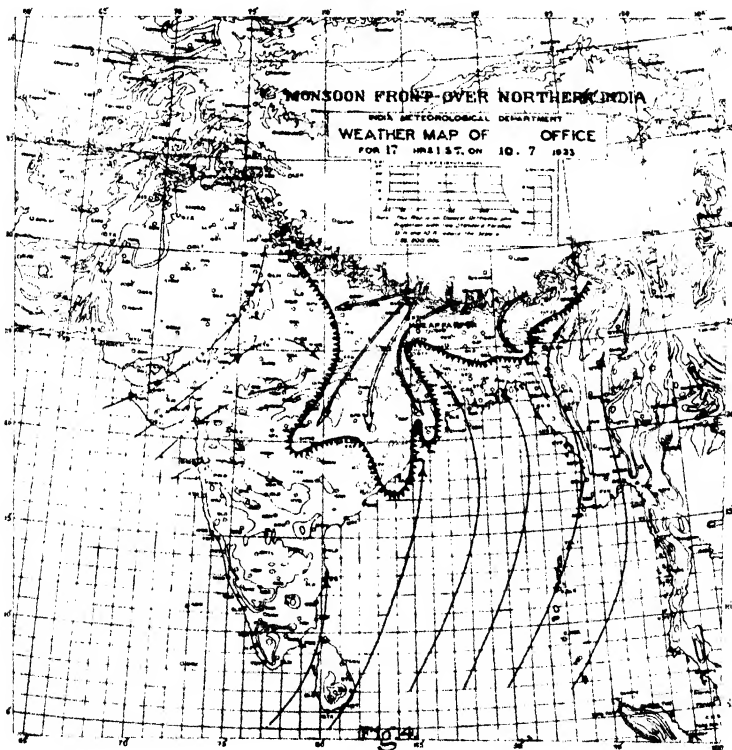
Figs. 3 and 4 represent the distribution of the Bay, the Arabian Sea and the Himalayan current at 8 hrs. and 17 hrs. respectively on that date. The figures, though idealized for the sake of easy explanation, have nevertheless been derived from an analysis of the actual weather charts of the Alipore Observatory. The changes in the upper winds at Allahabad were significant. The wind at 0.5 km. in the morning was southerly, force 6, and in the afternoon it changed to northerly, force 4. This reversal and other evidence suggest large scale subsidence of the Himalayan air. It will be seen from Fig. 3 that Muzaffarpur was very near to the monsoon front in the morning. The position of the front in the afternoon of the same day as seen from Fig. 4 suggests that there was a general tendency for the occlusion of the monsoon air over south Bihar. It is, therefore, apparent that conditions were favourable for the formation of whirls on the monsoon front especially over Bihar. In the following table rainfalls of 2" and over at the various rain-recording stations in Bihar and Orissa are given.

AMOUNT OF RAINFALL.

RECORDED BETWEEN 8 HRS. OF 10TH AND 8 HRS. OF 11TH JULY, 1933.

District.	Station.	Rain, inches.	District.	Station.	Rain, inches.
Patna ..	Bihar ..	4.75	Darbhanga	Darbhangā	2.23
	Asthanwan	2.50		Mahiuddin-	3.34
	Bakhtiarpur	2.30		nagar.	
Muzaffarpur				Jalay ..	2.75
	Sitamarhi ..	3.93		Pusa ..	3.53
	Muzaffarpur	1.80			
	Minapur ..	2.00	Monghyr ..	Sagrampur	2.40
	Katra ..	14.80			
	Belsand ..	1.97			

District.	Station.	Rain in- ches	District.	Station.	Rain, in- ches.
Purnea ..	Purnea ..	2.60	Feudatory States of Orissa and Chota Nag- pur.	Bolongir ..	2.41
	Gondwara ..	3.20		Baramba ..	3.15
	Barsoi ..	2.06		Athgarh ..	5.93
	Manihari ..	3.45			
Santal Parganas.			Sambalpur	Ambabhona	2.80
	Madhupur ..	3.89	Palaman ..	Garhwa ..	2.45
				Ranka ..	2.27
Angul ..	Balandapara	2.00	Singhbhum	Majhgaon ..	1.78



Incidentally it may be noted that the rainfall figures in the above table illustrate the importance of the path of subsidence of the Eastern Himalayan air from the point of view of flood warnings.

The afternoon Daily Weather Chart of the 10th July shews that most of the rain in the Muzaffarpur District at any rate occurred before 5 P.M. The Bhicanpur Factory where the rain of fishes occurred on that day is about 4 miles to the north of the small river *Gundak* and about 6 miles north of the Muzaffarpur town. The factory recorded 7" of rain by the afternoon of the 10th. The rainfall of 15" at Katra which is about 18 miles north-east of the Muzaffarpur town and about 3 miles on the east bank of the river *Baghmati* is also significant. The rainfall distribution in the neighbourhood of Katra-Bhicanpur-Muzaffarpur region suggests the formation, travel and dissipation of a water-spout or spouts. These probably formed and sucked up fishes to be deposited later. The details of the mechanism of the formation of water-spouts, which are very local in character, are questions of micro-meteorology, and cannot, therefore, be discussed here.

As regards the frequency of the rains of fishes being greatest in the afternoon it may be noted that the greatest frequency of the nor'westers is also in the afternoons. The reasons have been discussed in another paper which will be published shortly. It may be briefly noted here that in the afternoons there is usually an accentuation of the horizontal temperature gradient to the south of the Eastern Himalayan air mass thus giving rise to conditions favourable for its subsidence.

Angami-English Dictionary—Part I.

By DR. HARALU.

FOREWORD.

It is several years, I regret to say, since Dr. Haralu brought to me in Kohima a complete dictionary, Angami-English and English-Angami, compiled by himself with the aid of other Angami collaborators, and asked me if I could get this dictionary published. In the form in which the dictionary was it seemed to need some revision and modification. Tones had not been shown and the collaborators' knowledge of the English language, though more than adequate colloquially, and a knowledge which did them much credit in the circumstances in which it was acquired, was not really enough to enable them to render in English the subtle differences of meaning possessed by the Angami words, differences so difficult to express, even when the meaning is clear, that I have sometimes found the greatest difficulty in translating the Angami into lucid English myself.

I gladly accepted the dictionary and with the help of Mr. J. E. Tanquist, a member of the American Baptist Mission working in Kohima, started to work through Dr. Haralu's manuscript, amplifying and altering wherever it seemed necessary. Unfortunately the work of dictionary-making is long and life is short and by the time we got to 'k' in the Angami-English version I was transferred to another post which made it quite impossible for me to continue. Mr. J. P. Mills has with him the remainder of the manuscript, and it is hoped that in the course of time he and his successors in the Naga Hills may be able to bring the work to completion. Meanwhile it will be of help to them to have the first part of it in print and it may prove useful for other purposes as well, fragmentary though it be.

In committing it to the press I feel that some acknowledgments are due to those who helped me in the revision in addition to Mr. Tanquist. These were mainly the Angami interpreters of the Deputy Commissioner's staff in Kohima, in particular Nihu and Lhuvisilie of Kohima, Nikrihu of Jotsoma and Thepfrhitsü of Khonoma. The dialect used is primarily that of Kohima, though in many cases the Khonoma variant is given after it in brackets. Dr. Haralu's preface and autobiography I have retained in their original form. They show better than could any words of mine the handicap under which the original lexicographer laboured but which was not permitted to nullify his very real desire to be useful to others. Whatever credit is due for the compilation of this dictionary rightly belongs to him.

J. H. HUTTON.

DR. HARALU'S PREFACE.

This little work has been placed before the public in response to a long-felt demand from among the foreigners who are desirous of being acquainted with the Angami tongue as well as from the men of this district who are desirous of learning the English language.

As a matter of fact, my predecessors have attempted to give elaborate lessons on the Angami language in many a simple text-book for the beginners. I have always found that the beginners of this language were very much handicapped in their study of such a complicated language for want of a dictionary of the Angami language suitable to their needs.

With a view to supplement this long-felt demand, this book has been compiled. But I fear I have not adequately discharged the obligations it implies. It is the result of my fourteen years constant endeavour to compile this work. If any one is found to be slightly helped in the study of the language by this Lexicon, I shall regard it worth my labour. I do not pretend to claim any originality in the compilation of this dictionary except it is perhaps the first of its kind.

I must acknowledge my thanks to Messrs. Krusiehu, Ruzhukhrie, Pehielie, Riuzielie, Kevichusa, and Neilhouzhu for their valuable suggestions during the time of compilation and for their encouragement in my humble attempt, without which, this work would never have seen the light of day.

HARALU.

HIS AUTOBIOGRAPHY.

Like other domestic people of this part of the country, not with a Silver spoon in my mouth, but with the same poverty stricken manner, so blessed by the Omnipotent God according to the social custom of Naga Hills, at Kenoma village, I was born in the year 1881.

So unfortunate was I, that I could not see the dearest face of my father, who took his everlasting rest in the eternal world soon after my birth.

Thus, being clunched myself into the miserable lap of my dearest mother in the like manner I have grown up in course of time to be one of the most unfortunate youth. I had none but my poor mother to look after me in this world at the critical time. In my place it was not customary to impart any education to the children. They should begin their lives as a cultivator from their very childhood and that is why my mother used to take me always to the field to start my life as a peasant. I was not, however, fully appreciating with my mother's idea of turning me into an artless farmer when I could understand a little about the world.

In the beginning of my life somehow or other I was not satisfied with the village life. I wanted something more than the ordinary village people, for which in course of time I found myself compelled to make an adventure to Kohima for the sake of acquiring knowledge and other languages in the hope of leading my people who are living in perfect darkness.

Consequently, when I was about 9 years old, I left my village quietly in order to start for Kohima and see what the youths of my age were doing there at that time. But unfortunately it so happened that I had lost my way to Kohima in the midst of a thick forest and had to pass the night under the shelter of the hollow of a tree where I was in no better condition than a beast having been dangerously disturbed by wild beasts and by the bites of ants and pricking of shrubs, and I had no alternative left on my part than to besmear my body with wet soils to get a little relief from the biting pain of the insects. It is needless to say that I had no other garment on my body save a piece of 'lengta' as worn by the Nagas to cover their private parts.

Luckily, I arrived at Khonoma on the fourth day of my leaving home quite starving and penniless, dressless and helpless. On the 5th day I arrived at Kohima from Khonoma a distance of 11 miles. After arriving Kohima I passed about 10 days in the compound of the Deputy Commissioner, Naga Hills (Colonel A. E. Woods) where I met certain friends of my father

with whom I passed my days learning at the same time few words of Assamese language. After that I was employed as a Shepherd on a monthly wages of Rupees four per month by Colonel Woods who seeing my faithful work as a Shepherd again appointed me as a Cowherd on a monthly allowance of Rupees five, to look after his own Cows. Thus I had to pass a lengthy period of about five years in such a state. Soon after this I was appointed as an Interpreter in the Deputy Commissioner's court when Major A. A. Howels came here as the Deputy Commissioner; who seeing my young age sent me to the Mission School at Kohima for my future welfare. It was on June 8th, 1902, that I was sent to School under the Mission at Kohima after my 8 months' service as a Dobashi. I was educated in the Mission School for about five to six years under great difficulty. After I finished my career in the local Mission School, I was sent to the Berry White Medical School at Dibrugarh, by Sir W. J. Reid, Governor of Assam, when he was the Deputy Commissioner. Naga Hills, to study the course of a Sub-Assistant Surgeon. It is needless to say that I had to undergo much difficulties in my student life for want of pecuniary help, though I was granted a Scholarship to cover my expenses.

During my student life in the Mission School, I was very unfortunate and helpless that I had to starve at times having none to give me a morsel of food. I do well remember that once I had to pass full eight days by taking only one Pumpkin, making it into eight pieces, each piece being for one day's meal. Having seen my wretched condition Dr. S. W. Rivenburg moved with pity on me and helped me with Rupees three or four a month as a remuneration for my coaching the Junior Students of the School after his instruction. This help of course was as much as a heavenly blessing on me at that hour of crying need for daily bread and I was still grateful to him and shall remain so till I leave this world.

Having experienced such difficulties I turned out successfully in the Medical School and came out from there in the year 1911.

Since then I have been working until now as a Sub-Assistant Surgeon in the Government Medical Department.

This is the purport of the real history of my sad and miserable life.

PRONUNCIATION.

Simple vowels.

a, ā as <i>a</i> in <i>father</i> .	o, ō as <i>o</i> in <i>pole</i> .
à as <i>a</i> in <i>fat</i> .	ō as <i>o</i> in <i>pot</i> .
å as <i>a</i> in <i>fall</i> .	u, ū as <i>oo</i> in <i>pool</i> .
e, ē as <i>e</i> in <i>feet</i> .	ũ as <i>u</i> in <i>pull</i> .
i, ī as <i>i</i> in <i>marine</i> .	ü as <i>ü</i> in German
ĩ as <i>i</i> in <i>pin</i> .	<i>brüder</i> .

Diphthongs.

The values of some of these are almost impossible to render in English

ai as <i>ai</i> in <i>aisle</i> .
au as <i>ow</i> in <i>cow</i> .
ei as <i>é</i> in <i>fête</i> or <i>a</i> in <i>fate</i> .
ià as <i>ya</i> in <i>Kenya</i> or <i>ye</i> in <i>yet</i> .
ie as <i>ī</i> slightly drawn.
ou as <i>ō</i> slightly prolonged.
uo as <i>o</i> preceded by a faint sound of <i>w</i> ; in the Khonoma dialect it becomes a simple <i>o</i> .

Unaspirated consonants.

b as in English.
ch as in <i>church</i> .
d dental not palatal.
f as in English.
g hard as in <i>get, giggle</i> .
h as in <i>hell</i> , always sounded.
j as in <i>jade</i> .
k, l, m, n, p as in English.
r always sounded, as in <i>carol</i> .
s as in <i>sense</i> .
t dental not palatal.
v, w as in English.
y consonantal as in <i>yell</i> .
z as in English.
zh as <i>s</i> in <i>treasure</i> .

Aspirated consonants.

chh as <i>ch</i> but aspirated.
kh as in <i>trunkhose</i> .
kh as <i>gh</i> in Ireland or as <i>ch</i> in <i>loch</i> .
ph as in <i>taphouse</i> .
sh as in <i>shame</i> .
th as in <i>priesthood</i> .

Composite consonants.

pf as in *cupful*; this bilabial *f* changes to kw (with the value of *qu* in English) in the Khonoma dialect. Other combined consonants are as indicated by the individual letters composing them.

Tones.

Generally speaking three tones are distinguished—high, middle, and low. These are indicated only where they are necessary to distinguish the various meanings of an otherwise identical word. The signs used are $\bar{\hspace{.1em}}$ for the high, ~ for the middle, and — for the low. Occasionally more are required and these are distinguished as rising, \nearrow , and falling, \searrow , and are located between the middle and high and the middle and low as the case may be, making seven possible tones in all for any given syllable: $\bar{\hspace{.1em}} \nearrow \searrow \text{~} \searrow \nearrow \text{—}$. The sign for tone precedes the syllable qualified. They are here arranged in descending order. Tone, stress and even, apparently, aspiration are all varied to distinguish different meanings from the same root. It is on the latter ground that the relative arrangement of words containing *ch* and *chh* does not always conform to strict alphabetical order. The apparent ambiguity between the rising and falling signs, indicating tones between the high and the middle and between the middle and the low respectively, does not in practice arise in this vocabulary, as these rising and falling signs are only used when an otherwise identical syllable with a high, middle or low tone with its appropriate sign also appears; the value therefore of the rising or falling sign is determined by the order of printing in the vocabulary. Thus in *ke/kre* (p. 152) the sign indicates a tone rising from low to middle, as determined by *ke_kre* which follows it, whereas *ke/krü* indicates a tone rising from middle to high and *ke\krü*, a tone falling from middle to low, as determined by their reference to *ke-krü*, and also, in the latter case, to *ke_krü* (p. 153).

Accent.

Normally the accent is equally distributed between the syllables of a word. Where this is not the case stress is indicated by an acute accent, *e.g.*, *chügé*, where the second syllable is accented.

A.

a, the first letter and the first vowel in the Angami Naga alphabet. It is pronounced as "a" in "father", "art", etc.

a, I, my, me; personal pronoun. In *avie*, "my property", *a* is in the possessive case; in *avü*, "struck me", *a* is in the objective case.

-abei, an exclamation of consternation uttered by a man who has just escaped causing an injury to another by missing him with missile aimed at something else.

-abeijâ, to fail to hit the mark.

abou, abu (boulie), my darling, my beloved child.

abu, abunu, permit me to, cause me to, I was permitted to, I was made to, etc.

achie (ayie) yes, all right; a particle implying consent.

adielâ, Never mind! Let it be!

adzügweu, my lover, wooer, paramour (of the man only).

adzügweü, my sweetheart (of the woman only).

ah, an expression of sorrow, vexation or worry: Alas!

ahou, an expression of astonishment, sudden surprise or fear.

ai, see *achie*.

akhru, (1) an expression of amazement or fear; did you ever! well I declare! The corresponding form of the word as used by women is *akhrie*.

(2) an expression of deprecation used to calm anger or excitement. Only the men use this form of the word, the corresponding word used by the women being *akhrie*.

akhru, my brain.

akhrie, = *akhru*, q.v., in first or second sense; used by women only.

ala, an exclamation expressing pain, sorrow, anxiety, regret, etc.; oh! (also *ale, aya*).

ale, see *ala*.

apau, m. *apaü*, f. a term of endearment used to children as (my) "pet".

athiâ, very good; all right.

athiâdiuchü, an exclamation used in case of narrow escape from the accident.

athuo, Berberis, a kind of tree giving a yellow dye (Also called *ntho*).

avaü, agree; ratify.

ave, an utterance expressing sympathy or pity: to feel sorry for.

avie, my property.

avu, we two; with reference to the person speaking and the person addressed.

aya, see *ala*.

ayie, see *achie*.

À.

à, the second letter and the second vowel in the Angami Naga alphabet. It is pronounced as "a" in "add", "pan", etc.

Ā.

ā, the third letter and the third vowel in the Angami Naga alphabet. It is pronounced as in "hall" or as "aw" in "draw", "oa" in "broad", etc.

B.

b, the fourth letter and the first consonant in the Angami Naga alphabet. It is pronounced as "b" in "bulb", "tube", etc.

ba, (1) to be, is, am, are; exist, be present, be at home, to be resting from field work because of *penyie*, etc.

(2) to sit, to rest on a seat, etc.

(3) the proper place for anyone or anything. The possessive pronoun must be prefixed, "his place", "its place", etc.; seat.

ba, to add something as in weighing rice to make up weight (used principally in trade).

baba, an expression used especially with the negative, as *baba mo*, which then indicates smallness in quantity or number: like "nothing to speak of".

baba, turbid.

bacha, bench, long wooden seat.

bacha, to last long.

badâ, stool, seat.

badâ, idle, remaining without doing work.

bagei, cart, wagon, etc.

bagou, to crawl.

bagwe (also **bawe**) old village (as distinct from colonies).

bahi, to loll or recline, to adopt an attitude of neither sitting erect nor lying flat.

bake, corner seat.

bakhra, cloth or mat spread to sit on.

bakrü, greenish nasal mucus.

balâ, middle seat.

balhi, tilt, tilted, resting on one side.

balo, still existing, yet remaining, staying, etc.

baluo, = *bato*.

baluo, = *bala*.

banu, sit back to back.

bapfüü, orchid.

bara, chair.

barhu, to squat, to sit upon the heels and hams.

basa, new village; new section of village.

basa, is more.

batha, a half standing and half sitting attitude; to adopt such an attitude.

batou, a small stool, round and without legs.

batou, to sit rigid; to fit tight (as of an axe handle).

batoungâ, to sit erect and watch intently.

batu, = *batou*.

bavü, gong, watch, clock.

bavüdü, hour.

bawe, old village : old section of village (see *bagwe*).

bawe, is, are (present tense of the verb *ba*).

baya, is, are, exists, lives (in a house or village).

bayie, winter, the dry season.

bazha, a term used to denote foreign musical instruments.

bazha, to sit on the floor.

bâ, **bo**, trunk, the axis of a tree.

-**bâ**, **bo**, shut, cover, enclose.

-**bâ**, **bo**, a fence erected in the verandah of a house to enclose a place for sacrifice : a place so fenced.

bâ, the main or essential part of anything, "the root of the matter".

băbă, mud : muddy.

băde, basis, beginning foundation.

bădi, a great tree ; (hence) of rich family.

băgu, barren, unfruitful tree ; bearing little or no fruit at all.

băkru, a tree the trunk of which is divided into a number of stems.

băli, a tree with a single main stem (the opposite of *băkru*).

băne, earth heaped and rammed at the foot of a tree ; (hence) a helper.

bănyie, immature ; a plant which has not yet grown to its full size.

băpfü, a tree with many branches, a bush.

băphi, a tree which grows horizontally.

bătei, a kind of bean with a black seed.

bătsa, a mature tree, a tree plant grown to its full size.

bătsă, fruitful ; bearing fruit in plenty.

bě, incubate, to sit on eggs or cover in order to hatch them as a hen does.

bě, to clip, to cut with scissors, to nip ; to pinch ; to clasp hard between two surfaces.

bě, to burrow : heaps of mould cast by rats.

-**bě**, to boil ; to cook in hot water.

bě, = *ba*, is, etc.

běbě, to murmur, to mutter.

begwe same as *be we*.

beibei (bībī), clinking sound.

běle, broody : sitting or wishful to sit and incubate (of a fowl).

běme, to brood : to sit on eggs in order to hatch them.

beniâ, a double strip of bamboo used in thatching. (< *be* = clip).

besa, new heaps of mould cast by some animals, especially rats and crabs (< *be* = burrow ; *sa* = new).

běsě, a strip of bamboo used in thatching, when three layers of strips are used instead of two.

bevü, to brood, to sit on eggs to hatch them.

bewe, old heaps of mould cast by some animals, especially crabs and rats.

bi—, see *Dzie*.

bià, biàm, never mind! it doesn't matter.

bibi, = *beibi*

bicha, see *mecha*.

-bie, to take up something such as gram with the hand.

-bie, to touch, to put the hands on.

bieperhu, to soil, to make dirty.

biepesuo, biepesho, to spoil.

-bie, a basket measure the capacity of which is about sixty pounds.

-bie, a Sema basket.

biede, depression: dent.

biejâ, to miss: to fail to touch. (hence) to fail to do right; to make a mistake.

borohu (borhu), hoopoe.

bou, bu, arm: the limb extending from the shoulder to the hand.

bou (boui), bu, clamorous; full of noise.

bou, vessel; anything hollow for holding food, liquid, things, etc.

bou, bu, room, chamber; (hence) swelling, ulcer in tumid condition.

bouba, to shoulder; to carry on the shoulder.

boui, bui, enclitic used to intensify or emphasize meaning, thus *zei* = dark, *zeiboui* = very dark.

boubie, forearm.

boudaboulie, waist-coat (lit. a garment into which the arms are inserted but which has the sleeves cut off.

boutsâ (bouchâ, bouchie), wrist.

buoga, coward.

bouhya, the act of raising the arm.

bouka, shoulder.

bouliâ, coat; shirt; (any garment with sleeves, cf. *keboulie*).

boulie, to put on coat or shirt.

bouluo, cockroach.

bounge (buonge), also called *bor, borû*, beetle; in particular the dung or burying beetle, *scarabaeus*.

bouru, vaccination, lit. arm writing or arm scratching.

bouthu, elbow.

bouthuru, elbow-cap: the bone at the point of the elbow.

boutsâ, broken (of a gourd).

bu (bo), let; to allow.

bubu, soft. (< *tibubu* = rot; putrify).

bubu (boubu), to bubble.

buo, to defecate; to evacuate excrement.

buo, to dabble; to play or work in water so as to become wet; to slush.

buokra, a white secretion from the eye; the white part of bird's dung.

buonyü, particles of excrement adhering to the anus after defecation.

buonyhü, = *Buora* (2), sticks covered with fecal matter.

buopfümia, scavenger, sweeper, remover of dung.

buoprie, break wind.

buozha, loose stool (medical).

buora, (1) old excrement.

(2) sticks covered with fecal matter. used in jest to soil others.

buorühü, hoopoe.

buorhei (borhi), fresh stool or excrement: fresh (cow) dung.

buosâ, n. dried excrement, old dung; vb. to be constipated, to evacuate hard stools.

buotâ, fecal concretion.

buozakrü, one who very often answers the call of nature: (hence) coward.

bvürü (keli), bull-roarer.

C.

c, the fifth letter and the second consonant in the Angami Naga alphabet. It is used only in combination with "h" as in the English "church".

-cha, n. handle; meaning.

vb. borrow; decide.

-cha, vb. fade; turn pale; wither.

-cha, vb. throttle; tie on a garment round the waist. (In both cases the significance is that of passing a string round an object and tightening the noose by pulling the opposite ends of the string, and this is the true meaning of the word.)

-cha, -chaa, n. fence; (hence) the purlieu of the village.

cha (kra), many.

cha (kra), white.

(cha)-chha, n. road.

vb. (1) raise; (2) cook.

(cha)-chha, adj. long.

vb. (1) ask; (2) strain, filter.

chabâ, main road.

chacha, far, distant

chachie, path.

chachü, the sixth month of the Angami year, approximately June.

-chachü, to cook. prepare food.

-chachü, pale; sickly.

-chachü, a black bead made of plantain seed.

chachu, see *chathou*.

chadanyi, a festival celebrating the annual clearing of paths leading to cultivations.

chadangi, same as above.

(chadi), chha-di, big road.

chadi, village fence.

chadi, the seventh month of the Angami year, approximately July.

chadza, cross-roads.

chage, a kind of grass having big and long leaves.

chagwinizu, millipede.

chahé, chahie, the drinking of liquor by the wayside, usually partaken by a group of persons outside the village.

chahou, a stockade or strong fence surrounding an enclosed space.

- chahuochaya**, gluttonous ; greedy.
- chakha**, gate.
- chakha**, hindrance, stumbling-block.
- chakra (tsakra)**, a tree or a shrub bearing a small edible berry.
- chakra**, see *chiechu* (3).
- chāḳhra**, immediately.
- chāḳkra**, steep path.
- chakhrie (chathie)**, now, presently, soon.
- chakou**, track.
- chakrū**, extra food.
- chaku**, a narrow and deep path.
- chalha**, the space outside the village gate or fence.
- chali**, curt, simple, direct (of speech).
- chapra**, passage of wild animals ; also of men.
- chaphrie**, bow for ginning cotton.
- chara**, strong smell ; excessive heat (of the weather).
- chare**, an entrance through a fence.
- charhā**, short cut ; by-way.
- charhe**, a point where two or more paths meet.
- charhie**, by path, short cut.
- charhie**, a part of the head ornament called *tsūla*.
- charhu, tsarhu**, plume of red or white hair carried on a shield.
- charu**, any of the longer bones of human or animal limbs after the flesh has decayed.
- chathā**, an offering to the fire god in order to appease him.
- chathā, chathou**, to stroll.
- chathie**, see *chakhrie*.
- chathou, chachu**, *odour ; scent ; smell ; stink.
- chatsa**, see *chiecha* (3).
- chatse**, a branch road.
- chatuo**, to walk.
- chatuosei**, stilts.
- chäü**, curt ; simple ; plain ; direct (of speech).
- chäü**, of various kinds. (adj.)
- (chäü) chhaü**, highway ; high road.
- chavü**, to defecate.
- chawhi, chahwi**, circular road.
- chawi**, a hook : a bent piece of wood or metal for hanging things on.
- chawishürā**, a kind of tree, commonly fed to cattle.
- chayie**, important.
- chayie**, popular song : tune.
- chazhougakhra**, a kind of vegetable having a sour taste.
- chazhü**, straight road.
- chazou**, out ; outward. outside ; hill, eminence.
- chā**, stake. post.
- chā**, (vb. intrans.) wake up, awake.
- cháhanuo**, a species of small red ant.
- cháka**, a species of ant.
- chákhrie**, a large black ant with a painful sting.
- chátei**, a species of small black ant, also with a painful sting.

châzle, a species of small red ant.

chepa (chiepha), belt.

-chie, back (of the body).

-chie, (1) hole.

(2) rotten.

(3) to dress wood.

chie, the verbal suffix in a command or request.

-chie, wet.

-chie (thie), till, cultivate.

-chie (tsi), python.

-chie (rûchie), be disgusted with.

chie (ki), pull, drag.

chie, year.

chie, see *chhie*.

chhie (khi), to distribute or present a share of meat at ceremony.

chhie (thsie, sie), to throw (of spear or long stick).

chhie (thi), of equal length.

chhie (thi), until, till.

chhie (khi), fathom.

chhie (khi), (1) guess.
(2) spell.

chhie (khi), challenge.

chiebie, crop; growing cereal; cereal crop until reaped.

chiecha (thiecha), the season between the reaping and final harvesting of the crops and the subsequent sowing.

chiecha, (<*chie*=back, and *cha*=tie).

(1) petticoat, skirt.

(2) ceremonial waist-ornament consisting of very thick white cotton rope.

(3) belt of woven cotton (*chakra*, *chatsa*).

chiecha, the waist.

chiechie (thieti), the wild turmeric plant (*curcuma*).

chiechiekhu (tsiàtikhu), a species of cicada.

chiede, a species of wild fig (edible).

chiega (kiga), to dilate; to force open, tear apart.

chiehi, to break bit by bit, to crumble. (vb. trans.)

chiehubâ (1) peach-tree (also *mezarsibo*); (2) the tree *phyllanthus emblica* (*khulhu*).

chiehusi (1) peach (*mezarsi*); (2) the fruit of *phyllanthus emblica* (*khulhusi*).

chiekechie (thiketi), **penià**, a tabu day observed by the Angamis to prevent a blight or rot attacking the cereal crops.

chiekesià (chiesie, thisa) **penià**, a tabu day observed by the Angamis to prevent the withering or failure of the grain in the ear.

chiekhrâ, a species of small bird with blue feathers on the back.

chiekhrie, sparrow.

chiekra, a species of hornet.

chiekra (chûkra), a block for cutting up meat, etc. on.

chiekrâ (chiekro), clod; a lump of earth.

chiekrâchienienuo, a species of swallow or martin.

chiekrü (tsiekrü), a migratory bird, probably a species of fork-tail.

chie_krü (chûkrü), a species of solanum which bears a yellow fruit (prob. *solanum indicum*).

chiekru, a plant, a species of *solanum*.

chie⁻kru, porcupine.

chie⁻kru, streamers of plantain leaf attached to cup of the same material when used in Angami ceremonial.

chieliëvü, a feast to which the participants all contribute.

chiemiäkejü (**thimikejü**) **peniä**, a tabu day observed by the Amgamis because the roots of the rice plants are not growing properly.

chiemou (**shemou**), *cordia myxa* L., a species of tree, the bark and leave, of which yield a brownish dye.

chiëna (**tsiëna**), wormwood.

chiënuo (**thino**), clan.

chiënuopfü, a species of large snake (probably the hamadryad, *ophiophagus elaps*).

chiënyie (**pinyie**), an edible fungus common on chestnut trees.

chiepfü, an edible fruit (*solanum* sp.) having a very bitter taste.

chiepfü, stub; the stump of small trees when the upper part is cut off.

chiepfü, back-strap; a band of plaited cane, or leather, passing round the waist of the weaver, in order to maintain the tension of the loom.

chiepfükerei, a species of small snake or slowworm (probably the latter).

chiepha, belt; a piece of leather or other material tied round the waist.

chiepha, a species of cane (*calamus viminalis*).

chiephä, wild quince or apple.

chiephra, a species of small owl.

chiephrá, to break, or tear apart, or split (using the two hands to do it).

chiephrie, a noose used as a snare for catching birds.

chierha, to tear.

chiehra, half a fathom, a yard.

chierhe, a dart, consisting of a piece of sharpened bamboo for use as a spear; a javelin.

chierhie (**tsarha**, **tsiärhiä**), to slip, to lose one's foothold.

chie⁻rho, to undo.

chie⁻rho, to tear off lengthwise, sliver.

chierie (**chieriä**), the eighth month of the Angami year, approximately August.

chierie (**chieri**), a species of wild fig tree which yields edible fruit.

chiesä, to fire successive shots as from the right and left barrels of a double-barrelled gun.

chiesä, the bastard sago palm (*caryota urens*, Linn.).

chiesi, a species of tree, *Litsala citrata*.

chieshü (**thishü**), fresh paddy from the last harvest (paddy more than one harvest old is called *zügwë* or *züwe*).

chietsü (**tichü**, **titsü**), a plant, the stalk of which has an acid taste, a species of begonia.

chietsü, a head of rice or other cereal plant.

- chie_tha** (*kitha*), to prolong ;
to pull ; to lengthen out.
- chie_tha** (*tsietha*), (1) out-
crops of rock.
(2) a great boulder inhabited
by a spirit or godling.
(3) stones erected in a line.
- chiet_the**, to clasp round the
waist, hold (in wrestling).
- chie_the**, (vb. trans.) snap ;
break pieces off (of a cord,
string, etc.) : to break a
bridge (of a stream or river) ;
to break a mark (of a spear).
- chiethuo**, to miss (in shooting).
(From *chie*, shoot, and
kemethuo, empty).
- chievü**, the simal tree (*Bom-
bax malabaricum*).
- chievü**, a species of large
cicada.
- chü**, small.
- ~chhü**, pick up, lift.
- ~chhü**, hear.
- chü**, do, perform, make.
- chü, tsü**, grow, spring up.
- chü** (*chüu*), that (that one).
- chü**, bead.
- chü**, wedge, be wedged in.
- chhü**, ache, pain.
- chhü**, a large basket for
storing rice.
- _chü**, eat.
- chhü**, (1) wild animal.
(2) flesh.
- chhüba**, a bench of planks or
bamboos on which are
placed the baskets for storing
rice.
- chhübe, chübellä**, boiled
meat.
- chubüo**, cud ; undigested food
of ruminating animals.
- chübuonge**, stag-beetle.
- chüchhaü** (*khuchü*), the grub
(nymph) of the larger dragon
flies.
- chhücha**, to buy meat, cut it
up and retail it.
- chhüchü**, a generic for the
smaller cats (wild).
- chhüchünhaphieü**, the Indian
marten ; stone-marten.
- chhühuo, chüwhuo**, to hunt.
- chhühuomia, chüwhuomia**,
hunter, hunter ; one who
hunts.
- chhühyakezakechü**, a tabu
day observed by any Anga-
mi village when a commun-
ity from another village is
entertained with fresh meat.
- chüdo**, a genus of flowering
tree, *wendlandia*.
- chüge**, lid of basket for stor-
ing paddy.
- chügé**, a ceremony entailing
the sacrifice of a small pig
to procure health for human
beings or domestic animals.
- chügesei**, a drill, or bow-drill.
for boring holes in beads,
etc.
- chügie**, a wooden bar placed
by the side of paddy bas-
kets for protecting them.
- chükanyü**, a species of wild
leguminous plant, the leaves
of which are eaten as a
vegetable.
- chükhu**, a species of small
beetle which eats dry meat.
- chükra**, block for chopping
meat, wood, etc.
- chükrü**, gland ; any internal
callosity in the flesh.

- chükrü**, see *chiekrü*.
- chüli**, a small tree, *alangium indicum* (formerly *marlea bigoniaefolia*).
- chhüli**, a species of bracken (*pteris aquilina*).
- chhükou**, run or path made by the smaller wild animals in the jungle.
- chhülousou**, an animal, probably legendary, which is believed never to come out of its hole in the ground until it is about to die. It is unlucky to see it. It is possibly identical with *chhüvosu*.
- chhüloü (tsülo)**, a water insect found in rice terraces.
- chhümei**, "the brush"; the tail of an animal given in hunting to the man who first touched the wounded beast, in addition to his usual share.
- chümerie**, garlic.
- chhümiä**, hair or fur of deer or of the smaller cats. (cf. *chüchü*).
- chhümou**, hoof.
- chhünouphe**, a foetus taken out of the womb of any animal killed.
- chhünuo**, small basket for storing paddy (*chhü*, q.v., and *nuo*, = child).
- chhüpa**, (1) an intestinal parasite of cattle.
(2) a small red wormlike insect found in water.
- chhüphie**, the lung (of animals only).
- chhüphra**, the baskets for storing grain when kept separately outside the house for fear of fire.
- chhüphou**, ligaments of nerves passing through the necks of animals; probably the ligament of nuchae.
- chürha (rhachü)**, tuberculosis adnitis.
- chürhaü**, vulture.
- chhürhei**, raw meat: uncooked flesh.
- chhürhei (chhürhi)**, tick; a parasitic insect which attaches itself to animals.
- chhürhie**, a strip of meat.
- chhürhu**, (1) the heart, kidney, spleen and the psoas muscle, which are forbidden to be burnt by Angami custom in the belief that the burning of these prevents their cattle from increasing. They may, however, be boiled—provided none of the water they are boiled in comes in contact with fire.
(2) the funeral meat which according to Angami custom is regarded as *tabu* to the clan of the deceased after the second day of the funeral. The term is also applied to the meat eaten by pullers of a memorial stone, in which case it must be consumed, if at all, on the day the stone is set up.
(*rhu* is from *kerhu*, unclean.)
- (chhü) rhu**, to divide (meat) into equal parts.

chhürhuo, shares of meat given to acquaintances by the performer of a ceremony of social status.

chhürià, intestine (of animals).

chhürie, firefly; glowworm.

chhüru, bone (of animals).

chürü, to lie, tell lies.

chhürü, to lie in wait for or stalk game; "still hunting."

chhüsa, meat which is not regarded as tabu by the Angamis and can be eaten under any circumstances (opposite of *chhürhu*). (*sa* is from *kemesa*, clean).

chhüsa, ache more.

chüsa, do more, make more.

chüse (**chüphi**), do much or often.

chhüse (**chhüphi**), ache very much.

chüse, a small barrel or torpedo-shaped bead made from the shell of the conch.

chhüse, liver (of animals).

chhüsepe, a ceremonial rite performed at the Sekrengi with the liver of a sacrificed fowl chopped up with ginger.

chüsià, then, after that.

chhüshülhe, colugo, flying lemur (*galeopithecus volans*).

chhüsi, chili; red pepper (capsicum).

chüsuo (**chüşo**), nasty; disagreeable to taste; not palatable.

chüsuo, must not do.

chhüsuo, fat (of animals).

chhüsuosà, tallow; intestine fat of cattle.

chhüterhrüzha, the right of a man who has killed enemies or wild animals to wear certain ornaments or use certain distinctions on his grave.

chhütsie, lard; pig's fat for cooking.

chhütsü, "the mask"; the head of an animal, given in hunting to the man who first wounds or kills the animal.

chütsü, an ornament consisting of a triangular segment of conch shell, used as an end piece for necklaces.

chhüvase, abomasum, the digestive stomach of a ruminant.

chhüvosü, **chhüvâ**, a rare species of mammal reported to feed on earth-worms and to resemble the young of the pig.

chhüya, the share of the second man to touch the dead body of an animal killed in hunting (excluding the killer himself). This share consists of two ribs, whatever other share he may, or may not, get. (*ya* = share).

chüya, does; eats, etc. (*ya* = pres. continuative suffix).

chhüyha, raw and undried meat.

chhüze, meat for sale.

chhüzhie, barking deer (*cervulus muntjac*).

chüzlà, carnelian bead.

chhüzhiebuonge, lesser stag beetle.

chhūzhiechūkrū, wild olive tree.

chhūzhiegare, a species of wild vegetable.

chhūzhienyie, a kind of tree, probably a species of box-tree.

chhūzhū, (1) hide, skin (of animals).

(2) sleeping place of wild beasts.

chhūzü, uncooked meat.

D.

d, the sixth letter and the third consonant in the Angami Naga alphabet, pronunciation "d" dental, not palatal.

-da, chop (used of cutting on a block).

/da, to clear jungle.

-da, to accuse, to charge with.

-da, perhaps; seemingly.

-da, cake, "fid", "dollop", applied to any flat piece of softish material, e.g. a cake of yeast or a loaf of bread; > *mepfi-da*, =honey-comb.

-da, stick on; cause to adhere.

dada, dadai, briskly, smartly, quickly.

dadi, serious accusation (generally with the implication of falsehood).

dadou, cunning.

dadu, slow, sluggish, clumsy.

dahou, fort.

dai, quick.

dapfü, (vb. intrans.) to adhere.

dapfemia, dakkwemia, mail runners (<Hindustani *dāk*).

daphi, the line round the head below which the skin is shaven.

darhe (tsürhe), the hair in front when combed down unto the forehead or worn in a fringe.

daru, medicine.

dasie, the hair in front when brushed upwards from the forehead.

dathuo (dara), empty honey-comb.

-dā, end, stump (as of a cigarette or a pencil); hence *dā* great, important (as in *ungumvūdāu*, our greatest enemy) always with a bad sense.

-dā, (1) to cut a notch; nick. (vb.).

(2) to escarp, make a slope perpendicular by cutting.

(3) buttress. (n.).

(4) (adj.) middling; mean, intermediate.

(5) any short unit of space or time (n) [? < (1)].

/dā, thigh.

/dā, suffix to denote the male among certain domestic animals (as *thudā*, bull).

-dā, (1) skill, cunning, wisdom (n.).

(2) weave (vb.).

-dā, thought, plan, scheme.

dāchū, stupid, unintelligent.

dādei (dādi), tightly plaited; closely woven.

-dā-dā, stout, sturdy (mostly used of children).

-dā-dā, occupation, task (particularly of house work).

dājū, try, attempt; tempt.

- dājü**, to prepare oneself, get ready.
- dājü (doje)**, without skill; resourceless, unresourceful.
- dāmia**, a species of tree having a thick bark and small white flowers.
- dāphi**, eccentric action; peculiar behaviour.
- dāru**, *wendlandia exserta*, a species of spiraea-like tree having a scented white flower.
- dārü**, loosely plaited or woven.
- dārie**, to imitate.
- dāsa**, new plan, new scheme.
- dāshü**, the first month of the Angami year, approximately January.
- dāsu**, a scheme resulting disastrously.
- dāthá**, dance performed by men with spear and shield.
- dāthuo**, futile scheme, a scheme which is bound to fail.
- dā zha**, ambitious.
- dā zha**, big, strong (of cattle, etc.).
- de**, cut, chop—of cutting through wood not placed on a block, nor growing in the ground from the roots.
- de**, equal.
- de**, vb. trans. (1) fold (of cloth, papers, etc.)
(2) dam, to stop a water course.
- dei (dī)**, thick, opaque (used of closely woven cloth or of thick forest); stout, thick-set (of men and animals).
- dei (dī)**, prohibit, prevent: (hence) to set up an obstacle, as a board placed in a gap to stop animals.
- dei**, burn (of fuel only).
- deichüraü, teichüraü**, the common Mynah, an Indian starling.
- deidei (didi)**, sticky, gluey, adhesive.
- deipá (jüpá)**, occiput; the back of the head or skull.
- derei, deri**, but.
- di**, rule; reign, to govern (a people).
- di**, young paddy; the young rice plant.
- di**, and; participial suffix corresponding roughly to "ing" in English, but perhaps more often with the sense of the past participle (active).
- di**, What!
- dià (da)**, four.
- dia**, to give drink.
- dichü**, to hoe; to loosen the earth and remove weeds when the crop is growing.
- die**, prisoner, captive.
- die (de)**, word; a spoken sign which conveys an idea; a topic: a sentence.
- diebá**, theme; subject; matter under discussion.
- diebe**, murmur; mutter, mumble.
- diebou**, a babbler, chatter-box.
- diebou**, to vociferate, clamour, to make an uproar (of a number of persons).
- diebou**, vociferous, chattering, loquacious, garrulous.

diedā, suggestion, project
(with the idea of futility).

die_dā, plan, counsel, discussion.

die khie, to slander, wantonly malign, start trouble between friends.

diekhraü, a dream foreboding a quarrel, e.g. a dream of collecting water-snails.

diekhruo, to backbite; sneak; tell tales.

diekrie, vociferate, clamour (of a single person).

diekrie, false rumour.

diekrü, a species of egg-eating migratory bird.

dieli, reserved; of few words; uncommunicative.

dielie, message.

dieliemià, messenger.

dienya, complaint; allegation.

dierha, coarse or indecent speech.

dieruo (dierori), a ceremony to avert evil resulting from unlucky words spoken.

dieshü, slander.

diete, captive; a person taken in war.

diete, an agreement.

diethä, straightforward, honest, trustworthy.

dievi, dievii, euphemism; metaphorical or jocular expression to avoid "calling a spade a spade"—e.g. "song" for "litigious dispute", "bitter" (*kepfü*) for "distilled liquor" (*dzuharo*), *kemezo* for *ke_khrie*.

dieze, obedient.

dima, tump; to heap up earth about the foot of the stems of the rice.

dimesa, to clear the stem of the rice-plant by stripping the decayed and superfluous leaves, and by removing adjacent weeds.

dizü, to weed; to remove the weeds from the rice-field.

dou, to make terraces for the purpose of cultivation.

dou, vb. tr., to erect; to set upright.

doulei (duli), an eight-anna piece.

-du, to sow.

du, to cut (e.g. cut down a tree; cut into lengths for firewood; cut a limb with a knife).

-du, to clip, lop; to cut the hair.

ducha, handle of hoe.

duchü, to cut or split into small pieces.

du-da, to stun: strike so as to render senseless.

du-da, to flatten; to strike a thing forcibly as to make it flat.

duda, to incise, make shallow cuts in.

dude, to dent; to strike so as to leave a depression.

dukhra, to cut or break asunder by a blow.

dulä, a bamboo frame, made to spin round a central upright, used for winding thread.

dulhe, to strip; take off the clothes.

dukhri, kill; slay.

duo (do), to apply a medicine of any kind to an injury to relieve a pain, or stop bleeding, as a temporary measure.

duo, conjointly, by twos. together (used especially in personal names of twin brothers, *Duopielie*, *Duosielhou*, etc. from *keduo*, q.v.).

-duo/duo (dā-dā), house work.

-duo-duo (dādā), astringent in taste (like tannin or crab apples).

dupha, to break a hole through anything.

duphapha, to cut up into very small fragments.

duphra (dupha), to find water by digging.

duphrā, to break (used of breaking compact and brittle or fragile substances with a blade, e.g. it may be used of breaking a man's head with a spade).

duphā, to kill with a single blow delivered by hand or with a staff.

du-the, fist.

du-the, cut asunder, slice in two.

dutsa, break (by striking or hammering).

dza, to place any object on others supporting it so as to leave a space underneath, as a pot on the hearth stones between which the fire is built, or a plank across a stream.

dza, crotch, fork (in combination with "tree", "river", etc. see *rürdza*, *seidza*).

dzadza, fear, nervousness, fright.

dzadza, light; without weight (see *medza*).

dzalhi, one handed.

dzau, nightjar.

dzāmvü, jāmvü, purify, absolve from guilt.

-dze, to meet; to wait for in order to meet on the way.

-dze, story (for *thedze*): (hence) about, concerning.

-dze, pack; wrap up.

-dze, cook thoroughly; to cook so as to make very soft.

-dze, to remonstrate; to demand an explanation from a person reported to have spoken ill of one.

dzedze, sticky.

-dzie, to roll the edge of a leaf to make a cup.

-dzie, to wear (of a cloth only), to put on a cloth or shawl.

-dzie (bi), hand.

dzieda (bida), to clap, to applaud.

dziekha, bikha, ring, bracelet, handcuff.

dziekhathuo, bikhatho, bracelets (of a woman).

dziekhrü, knuckles of the phalanges, the second joint of the fingers; also. the knuckles of the hand.

dziekinuo (bichüno), finger.

dziekrü (bikrü), thumb.

dzzielhi (bilhi), a single hand or arm (as distinct from *dziere*); a single handful.

dziemhi (biwhi), a rail, as of a bridge, to prevent danger from falling (lit. "hand-eye").

dziemvü, a person so constituted that animals avoid his touch. Thus if he pull a string to scare birds they fly from the field, and if he spread birdlime for them none get caught. If such a man apply his hands to a fly blown wound the maggots leave it, and if a snake bite him the snake dies.

dziene, a tabu day observed by the Angamis when a new *chiekrau*, or *tsiàkrau* (first sower) or *liedepfü* (first reaper) is appointed for a village.

dziepa (bipa), an armlet of red plaited cane worn on the upper arm.

dziera, handle (used when large enough to accommodate the whole hand).

dzieraü, praying mantis.

dziere (bire), the two hands: double handful: as much as can be scooped up with both hands held together.

dzierepa (birepa), gauntlets made of cloth and worn as a badge indicating that the wearer has had an intrigue with two sisters.

dziesupa (bisupa), gauntlets made of cloth worn on the forearm in ceremonial dress.

dziezhü (bizhü), slap, smack.

dziezhü (bizhü), the palm of the hand.

dzü, properly *jü*, q.v.

-dzü, water; fluid.

-dzü, short.

-dzü, eggs; testicles.

-dzü, to meet.

dzüba, standing water (as in a terraced field, and also applied to water kept at hand in the house, in which case the second syllable is slightly accented. < *dzü*, water, *ba*, remain, in both cases).

dzübü, a device for automatically scaring birds and rats, which is worked by water. A bamboo, consisting of two sections with the lower section bored below the node which joins the two, is pivoted on a horizontal stick, so that a stream runs into the upper section which overbalances when full, empties itself and falls back with a bang against a horizontal bamboo laid on the ground so that the lower section will strike it. (*Accent on first syllable.*)

dzübü, the point at which a water channel begins; also the first branch channel led from the main channel, subsequent leads being called *dzüchie*. (*Accent on second syllable.*)

dzübe, pool or deep, in a river; the still deep stretches of water as distinguished from the alternating rapids in a hill river.

dzübou, pitcher; water pot; jar for storing water.

-dzü-cha, water-channel; aqueduct.

-dzü-cha, a kind of taro or "kachu", a variety of *colocasia antiquorum*.

dzüchie (dzütsi), clean or pure water.

dzükhau, spring; well.

dzükhu, skater (an insect); also any water-bird.

dzüki (dzürte), dried leaves.

dzüki, in front of, before.

dzükrei (dzükri), pure water: clean water.

dzükrie, turbid water, muddy water.

dzükru, current; flowing water.

dzüku, cold water.

dzüla, a spring caused by percolation through the soil, of water flowing in a channel or stream further up the hill.

dzüle, hot water.

dzülei (jüli), a small variety of bamboo; "jilli". (*arundinaria elegans*, Kurz).

dzülha, the act of catching birds by putting bird-lime at a place where birds come to drink water.

dzülhi, monorchid: having only one testicle.

dzüli, a bamboo aqueduct.

dzülie, underground stream; a stream of water running for a short distance under a stone or under the surface of the earth.

dzülierhie (penià), a tabu day observed by the Angamis to prevent the washing away of field by water.

dzülüo, spring; an outflow of water from the ground.

dzümu (phiemu), batatas; sweet potato.

dzünuo, taro, *colocasia antiquorum*, "kachu".

dzünuoni, dropsy.

dzünyhü, a species of snake, so called because common in irrigated land.

dzüpha, water lead connecting one irrigated terrace with another.

dzüpfе, water proof; (**tirüpfе**, of cloth; **kenyhou**, rain cloak made from pandanus leaves or from strips of bark).

dzüpfе (dzükwe), well; to make a pit in the ground for water supply.

dzüpfе, a kind of caterpillar.

dzüphrielie (phriedzü), a continually watered cultivation: a terrace which is irrigated in the dry season.

dzürau, water-bird.

dzürda, boiling water.

dzürhu, dirty water: slops.

dzüriäpfü, elder sister: elder cousin (female: paternal).

dzüriäu, elder brother; elder cousin (male; paternal).

dzürükite, dry taro leaves.

dzürü, fresh taro leaves.

dzü_rü, shuttle; spindle.

dzüseva, the act of purification performed early in the morning of the Sekrengi genna day when all men and boys go to the village spring for purification by sprinkling water on their foreheads and on all their weapons.

dzüshü, a comb used in weaving for straightening the threads composing the warp.

dzüshürá (dzüzürá, dzüsire), water spider.

dzüthezou, drowning in flowing water which sweeps away the body.

dzüthoukiva, a tabu day observed by the Angamis to prevent fire. Water is sprinkled on the houses by a man.

dzütouphra, wild duck, wild goose, or any bird of similar appearance and habits.

dzüva, water leech.

dzüvâ (kevä), water-fall; rapid.

dzüwé, intermittent spring which dries up when the rainfall is absent or light.

dzüweü, beloved (of a woman).

dzüweu, beloved (of a man).

dzüyie, water channel; aqueduct; irrigation canal.

dzüyie (voyie, voche), gutter-spout, consisting of a split bamboo placed in a current of water to carry out a head of water as for washing or for filling vessels.

dzüzei, lonely; lonesome; feeling of depression or fear resulting from solitude; dark outlook. (*zei* from *kezei*, darkness).

dzüzie, optimistic; bright outlook; in particular the feeling of relief and pleasure experienced by a person on meeting a fellow creature; the opposite of *dzüzei*. (*zie* from *kezie*, light).

dzü-zü (dzüzhü), young and tender taro leaves.

dzü-zü, the top leaf of a taro plant.

dzüzu, (1) the liquor obtained from fermented rice.

(2) surplus water in irrigated terraces; (also *dzüzou*).

E.

e, the seventh letter and the fourth vowel in the Angami Naga alphabet; pronounced as “*ē*” in “*event*”. The diphthong *ei* is pronounced as “*ê*” in “*fête*” or “*a*” in “*fate*”.

e, *ei*, yes.

ei, and interjection used to call attention.

ei (eich), an expression of surprise, dislike or fear.

F.

f, the eighth letter and the fourth consonant in the Angami Naga alphabet; pronunciation as “*f*” in “*fluff*”.

fü, to warm. to smoke (transitive) by placing near a fire or lamp.

fü, (1) (vb. intransitive) smell; stink; emit an offensive odor.

(2) (also transitive) to cause a person to perceive a bad odor, *mhare kesuo a füwe*, where *a* is accusative, not nominative.

füfü, breeze, light wind.

füge, bargeboards put up on the gable of his house by a *zhathomia*, i.e. a man who has performed the *zhatho* (*zhathä*) ceremony.

fükrü, bitch (female dog) that has whelped.

fülo, a species of lime.

füluo (fülá), a term used in thatching for the act of patching up the front of the thatch with old material to get a smooth surface.

fümei (kithá), the back gable of a house.

fümie, the fringe of thatch overhanging the front gable of a house.

fünu, bitch (female dog) that has never whelped.

füni, female puppy.

füpfu, male dog.

füphrie, the plaited thatch on the front gable of a house as used by a man who has performed the *sa (sha)* or *shisha* ceremony.

füpruo (füprá), a thorny shrub the stem of which is used for cleaning teeth.

füüsei, strips of bamboo used in thatching to fasten the thatch to the roof.

füyá, stray dog.

füzemià, the man who leads the dogs when hunting.

G.

“**g**” is the ninth letter and the fifth consonant in the Angami alphabet. It is pronounced like “**g**” in “*gag*,” “*get*,” “*giggle*”; when preceded by “**n**”, as in “*singing*” (not as in *finger*).

-ga (gha) open, pull apart, widen, stretch open, separate, dilate (as of a hole in

cloth, or of a brass bracelet made looser by prizing apart the ends).

-ga, vegetable, curry, anything eaten as relish with rice.

-ga, (1) winnow.

(2) hover (as a hawk).

-ga, to cock (of a gun) [probably <(i)].

gabou, curry vessel for taking to the fields, made of gourd or bamboo.

gadzü, vegetable soup.

ga-dzü, an edible plant with a leaf resembling a primrose leaf, and a slightly bitter taste.

gadzüsi, the fruit of *ga-dzü*.

gajá, any green vegetable plant (from *ga*, vegetable, and *peja*, green).

gaka, curry given to a person by a neighbour.

gakhrá, a vegetable having a sour taste (*khra*=sour).

gakra, an edible plant growing in damp places.

gakrie, the mustard plant.

gakhrieki, dry mustard leaves.

gamouü, an edible fern.

gámvü, old (used) thatch.

ganya, a thorny tree the leaves and fruit of which are edible, *pouzolzia*.

ganya, any vegetable.

gapa, an edible plant of the genus *plantago*; ground plantain leaf.

gapfüü, an edible plant having a bitter taste.

gaphe, place reserved for growing thatch.

- gaphie**, a tree with a very white wood much used for utensils, and an edible leaf.
- gara**, a creeping plant, having a small red flower, and edible.
- gare**, a kind of sour vegetable, also found wild.
- garei**, an edible plant.
- gareipe**, the caterpillar of one or more of the hawk-moths, *Sphingidae*.
- gasie**, a tree having a red flower, a white wood similar to *gaphie*.
- gashulâ**, an edible fern.
- ga-tha**, an edible herb.
- ga-thâ**, the small thatching grass (*saccharum* sp.).
- gather**, a small flowering tree, the leaf of which is eaten as a vegetable.
- gaü**, an edible creeping plant, probably a species of *momordica*.
- gazhie**, a sour edible plant.
- gazhiethou**, young shoot of *gazhie*.
- ge**, to pound (as in husking rice, with a pestle).
- ge**, (1) to grind (as in a quern);
(2) to press between two bodies (as a paper under a book on a table).
- ge**, the post in the centre of a house carrying the roof tree at the middle between the fore and aft gables.
- gê (gei)**, "Let us go", an expression used when a person calls another to come a way (or to join in some common task).
- ge**, drill, bore a hole.
- ge**, cover, close with a lid.
- gei**, to cut; to saw.
- gei**, upon, on.
- gei (ghei, gi, ghi)**, kill.
- geizhie**, to strangle a chicken in order to take omens from the position of its legs in death, as at the Sekrengi genna.
- gie (yie)**, to support or to protect (as with a rail).
- gou**, hang, suspend, hang up.
- gou**, to go as an animal on all fours (used of any animal from an elephant to a lizard, also of a crab—, but not of a snake).
- goudzâ**, a species of frog.
- gourâü (gurâü)**, (1) vein, (2) a parasitic worm found in the crops of fowls, (3) a kind of water insect.
- gu**, (Give! A word used when asking for a thing which is being offered by the giver. (Cf. *Chang ku*, give.)
- guo**, to scorch food or anything else at the fire.
- guobou**, a small variety of land crab.
- guodzû**, marshy place, wet ground.
- guogu**, a dark variety of land crab.
- guohe**, a yellow variety of land crab.
- guokru**, a large yellowish species of frog.
- guonye**, a large and odorous species of frog.
- guosa**, a species of frog found in woods and in dry places, much prized as food.

guothâ, any land crab other than *guogu*.

guothie, a reddish and gregarious variety of land crab.

guoto, a small and noisy species of frog.

guornuo, a species of frog.

gwi (rhi), to scrape away mud.

gwi (wi), mithan (*bos frontalis*), domestic "bison" or gayal.

gwizie (wizie), gad fly: breeze fly.

H.

"H" is the tenth letter and the sixth consonant in the Angami vocabulary. It is pronounced as "h" in "hope", "hoe."

-**ha**, breathe; inhale and exhale.

-**hâ**, this, pointing out a thing near by.

-**ha**, dig up (as potatoes or roots).

hadzü, before this, before.

hahâ, bat (the animal—*Cheiroptera*).

hahâlâ, flippancy.

hahi (ha i) in this way, thus.

hakâ, these.

haki, here.

hanu, here.

hara, hereabouts; here.

hara, scarlet, vermilion.

harie, Hi! Look here! Hallo! Behold!

hasia, hereafter.

hatsa, this side; coll. come here!

hau, hauwa, this, this one.

hâ, hah, Eh? What? (What did you say?)

-**hâ**, bore. make a hole (with the idea of making an entry into a receptacle. Thus it could be used of piercing a gourd for liquor to be poured in, or of digging a well, but not of piercing a sieve.

-**hâ**, dig.

-**he**, be generous.

-**he**, raise.

-**he**, to cover (as a piece of meat with a leaf).

-**he**, to fan: to blow, sufflate.

-**he**, (1) to shade or ward off the sun.

(2) to build a "lean-to" against a house.

(3) to apply a poultice, foment.

-**he (whe)**, to visit a girl to serenade her, drink with her and court her (said to be derived from *whe* used of vultures gathered together where a corpse is).

heba, a place for taking lunch or supper either in the field or outside the village gate.

hecha (hetsa), broken by wind.

hechâ, blown down (of houses); laid by winds (of crops).

hechâ (habielie), a child's game of the nature of tig.

hechü, a sort of platform (generally circular in shape)

where young people sit around a fire to drink on winter evenings.

-hi, to break by bits, crumble, gnaw.

-hi (whi), to extract with a stick or tongs from fire (as roasted chestnuts taken from the embers).

-hi, to bore a hole in wood by means of an iron point heated red hot.

-hi, like this.

hichü, gnaw.

-hie, we (of persons speaking exclusive of persons addressed).

-hie, feast.

-hie (hě), to raise the price of anything, as in bargaining, or in bidding at an auction sale.

-hie, show forbearance, exercise self-control.

-hie, open, uncover.

-hie, don't! (a prohibitive particle, also used as a prohibitive infix in verbs).

-hie, dig: plough (of breaking up the ground of irrigated land preparatory to puddling).

-hie, tie on a cloth round the shoulders to carry a child on the back,

hieba, shelf for cups.

hiebou, a cup made of a narrow-waisted gourd.

hiekâ, we (see *hie* above).

hiekhei, handle (of the cup or of the drinking vessel).

hiekhou, a round bottomed cup made from a gourd.

hiekie, horn of buffalo or mithan used as a drinking vessel.

hiela, dig up, disclose, reveal (in particular of buried treasure or of a secret).

hieli, quota of drink for consumption whether before or after it is poured out.

hielie, endure, show fortitude.

hieluo, **hieluochie**, Wait! (used as an order in the imperative only).

hieluo, forbid.

hiemvü, relish; snacks of food taken with rice beer, *zu* (usually salted to provoke thirst).

hienia, we two, exclusive of the person addressed.

[*N.B.*—inclusive of the person addressed it is *amu* or *arou*.]

hiepou, bamboo jug ("chung").

hiesha, dregs, lees, of rice beer left in the cup after drinking.

hieshá (vahe), gourd for carrying liquor.

hiesi, little bamboo mug used particularly to take out to the fields.

hiesià (hesià, thehesià), the afternoon (lit. the time following the interval for the midday drink when working in the fields, *sia*, after).

hieshie, bad luck; ill fate; evil destiny (used primarily of death whether of man or his domestic animals, but not exclusively).

hievi, good destiny (particularly with an implication of fortunate coincidence).

ho, an expression of regret, or of emphasis.

hou, an exclamation of surprise.

-hou, to dry anything at a fire.

-hou, to go round forming a circle, of persons; to surround (with a fence).

-hou, roam: to wander about.

hounyie, cattle-egret.

houpfü (houtu), a species of wild ginger with an edible flower.

hure, file (an instrument for cutting or making smooth metals: *hu*=tooth and *re*=many and small).

-huo (whuo), drive: chase.

-huo, some; part of a thing.

huocha, sand; sandy place.

huochakhro (huochiekhro), a migratory bird, named after the sound of its call.

huochanyâ, sand.

huoyâ (huoyiâ), a few; a little.

huphienuo, a species of wild raspberry.

hushü, an edible plant (probably a polygonum).

huthâ, a kind of thorny tree bearing a small white flower.

hutuo (heto), a thorny tree bearing a red flower, *Erythrina suberosa*, "Flame of the forest".

hutu, a name given to two species of cuckoo (clearly named from the sound of the call).

hü, to peel; to strip off the bark.

hü, to urge; incite; to goad.

-hühü, slovenly, slatternly.

-hühü (hrührü), careless, hurried (and so, -forgetful).

I.

"I" is the eleventh letter and the fifth vowel in the Angami alphabet. It is pronounced as "i" in "ill" or as "i" in "police".

i, like this: this way.

iche, do so. do thus.

ihie, don't do so.

imâ? ime? is it like this?

iphre, (it is) like this.

isi, so; so it is said (e.g. *Lhuvisilie isiwe*="Lhuvisile says so").

ituo, it will be so; like this.

itse, if this is the case.

iwa, in this manner, thus. [Used also as a verb, -e.g. *iwalië*-"do it in this manner; *iwawara, n vütuo*-"if you do this sort of thing, I will beat you".]

iya, it is done this way.

ize (izâ), exactly so (used sarcastically of what should have been done differently - e.g. French, *par exemple!* a precise translation of *ize*).

J.

“J” is the twelfth letter and the seventh consonant in the Angami alphabet. It is pronounced as “j” in “joy”, “judge”.

—ja, (1) to be offended; to be displeased.

(2) bless; to wish a person happiness and prosperity.

—ja, dam; to confine water by making a ridge of earth or stone, to embank; to stand in a line or round an object; to fly in company (of birds).

jau (dzau), the little owl (? *athene noctua*).

—jâ (je), be guilty.

—jâ, knock, strike (as one's heel against a wall, or elbow on a post, or of two stones together, or a flint and steel).

—jâ (je), pluck; exfoliate; to strip off the leaf of a plant.

—jâ (dze, dzâ), cheek, the side of the face.

—jâ (je), to lure.

jâhunyü (jehunyü), an edible plant.

jâjo (juju), a species of small gregarious bird, so called from its note.

jâkha (jekha), to strike so as to set off (as of a trap or the hammers of a gun); to fill or block a hole, as with a nail or anything else that is struck.

jâme (jeme), a hollow in the ground caused by striking it with a heavy implement.

jâmvü (jemvü), bruise, abrasion (caused by the contact of the flesh with some hard object. It would not be applied to bruises caused by whipping, for instance, which would be *vümü*).

jâniâ (jenyie, jongs), to strike so as to cause a pit, dent or break (as in the edge of a tin struck with the back of a *dao*).

jâpha (jepha), break a hole in.

jâphrâ (jephrrâ), to break a thing into pieces.

jâru (jeru), the scarlet fruit of a wild creeper [used as a simile for a person outwardly pleasant but inwardly hostile].

jâtenuo, a species of very small fish found in streams (tabu to cattle owners).

jâthou, an edible plant.

jâyie (jegie), a species of bird.

jowhi (kupritsü), a leguminous bush, the leaves of which are used as soap (*Flemingia* sp.).

juu, a species of small bird.

jü (—dzü), the shaft of a spear.

jü (—dzü), slow, lazy, sluggish.

jü (—dzü), none, nil.

jübâ, beam used in weaving, round which the warp passes.

jü—dâ (dzü—do), a worn-out hoe.

jü—dâ (dzü—do), weaving.

jüketaukhrü, last month.

jükhrie, "sword" used in weaving for beating up the weft.

jünyü, heddle.

jüpa, an embroidered spear.

jüpa (dzüpa), pair of breast-rods, used in weaving (one alone would also be spoken of as *jüpa*, but the *pa* indicates duality).

jüpa-jünyü, loom (i.e. the weaving apparatus without thread or cloth, v. *thejü*).

jüpou, shed stick.

jüpfürö, the rods on which the warp is laid out when setting up the loom.

jüpfüru, flint-lock gun.

jürü, shuttle. (*N.B.*—The Angami shuttle consists of a simple spindle without a case).

jüshü, brush for combing and straightening the warp.

jütse, laze-rod.

jüzhie, two upright stakes fixed in the ground three or four feet apart to which the beam, *jübat*, is fastened when weaving.

K.

"K" is the thirteenth letter and the eighth consonant in the Angami alphabet. It is pronounced like "k" in "smoke," "kick."

-ka, remove; to take out by means of spoon or a sharp instrument.

-ka, give. [*N.B.*—this root *ka* is used uninflected in asking

for a thing="let me see," "give me."]

-ka, (1) lose; perish.
(2) skip; hop.

kadi, dead loss; great loss.

kaka, See **kepfü-kaka**, not sounding genuine, sounding disingenuous.

kakie, stiff; not easily bent.

kakrie, hasty, rough, careless (of a person who is casual and not thorough in his work or speech).

karha, to dig out by opening up (as a thorn with a pin; so also to make a tear or slit in cloth).

kase, a great loss.

katou, a caterpillar of the geometrid family of moths.

kayie (kawe), heir.

kaza (keza), pay, salary.

ka_za, loss; damage.

-ke, descend; go down.

-'ke, tush, canine tooth.

-ke, sugar-cane (called *nukricha* by the Khonoma group, because used to feed motherless infants).

-ke, vb. hollow out, scoop out, carve (of wood or stone).

ke, a prefix denoting a noun or adjective.

ke-ba, a fall trap.

ke-ba, gong.

keba, the state or condition of being, existing, (that) which exists (from the verb *ba*, is).

kebachü, residence; dwelling place.

kebâ, prepare mud for plastering walls or floor.

kebâ, a bamboo clapper for scaring birds and animals from the fields.

kebe, (1) crowded: packed close: thronged (both of place filled and of the individuals filling it).

(2) to speak ill of; backbite (with the implication of whispering).

(3) to boil.

ke⁻bi, devil-possessed.

ke⁻bi, taking two at a time.

kebie, fall trap (for wild animals of some size).

kebou, confound; to put into confusion.

kebou (kebu), noise: public talk.

keboulie, the act of linking the arms.

kebvü, confuse; to put into disorder.

ke/chha, cooking: preparation of food.

ke-cha=(1) reverberation, noise (as of the turmoil of a crowd, or of a hammering on wood).

(2) worry, disturbance.

ke⁻cha, reduplication, quickening up, (as of a man hammering with slow blows, or driving cattle too slowly).

ke⁻chá, **kecha**, wrestling.

ke⁻châ (kesha), long.

kecha, a ravine: valley between two hills.

kechachie (keshathî), everlasting; forever.

kechahuo, greedy; gluttonous.

kecharü, dainty; fastidious; particular in the matter of food.

kechavuo, convalescent (Adj.).

kechazie, lazy; indifferent; neglectful.

ke⁻che (ke⁻chie, kethî), (1) adze.

(2) equal in height, level (of separate entities).

ke⁻chie, spoon.

ke⁻chie, n. wet: dampness.

ke⁻chie, hole.

ke⁻chie (keshe), crochet-work, knitting, cross-stitching, netting. (verb —*chie* or *she*).

ke/chhü (ke/shü), lift up.

ke⁻chhü (ke⁻shü), threaten.

kechü, to judge.

ke/chü, small.

ke⁻chü, (1) disease: sickness.

(2) investigation, decision.

ke\chü, (1) work; action.

(2) overflowing; too full (of a filled vessel, or of crops sown so as to transgress the boundary of a field).

ke⁻chü, victuals; food; edibles.

kechülhie, malicious; mischievous.

kechüpā, captious; perverse; pettifogging.

kechüpā, hardy; able to bear pain.

kechürei, reddish; of the complexion of human beings, or of the natural colour of wood.

kechürhuo, meat presented to a friend generally at time of ceremonial feasts in

- exchange for similar compliments received or expected.
- kechüri**, gnarled, twisted (of trees).
- kechürova**, malingering.
- kechürü**, liar.
- kechüruo**, disorderly.
- kechüsia**, sensitive: unable to bear pain.
- ke-da**, (1) examine; choose; select.
(2) accuse falsely; slander; libel.
- ke-da**, chopped (on a block) [*< da*].
- kedâ**, tempt (in Biblical sense); test; try (to find out what is in a person's thoughts).
- ke de**, abuse; reprove.
- ke-de**, equal: alike.
- ke-de**, stamp on, trample; press down (as of cooked rice in a pot).
- ke dei**, delay or hinder.
- ke-dei**, closely woven, impervious (of basketry or cloth).
- ke/dei**, oblique; askew (so as not to be seen clearly).
- ke-dei**, throw; hurl.
- ke-dei**, burnt (of wood only).
- ke-di**, king; chief; kingdom.
- ke-di**, change.
- kediba**, throne
- ke-dia**, rectangular; having four corners.
- ke-dia**, the scarlet minivet (a small bird).
- kedie (kediemia)**, slave; prisoner.
- kedieki**, prison.
- kedierhe**, agree; compromise.
- kediese**, agree; compromise.
- kedieze**, to obey reciprocally; to take one another's word.
- kediki**, palace.
- kedinuo**, prince.
- kedipfü**, queen.
- kedâda**, cunning; clever.
- kedâ**, test; tempt.
- kedâla**, interrogate.
- kedou**, chatter (as teeth).
- kedâ**, weaving.
- kedâjü**, experiment, try, practice (as of a new game or trick).
- kedâpâ**, presumptuousness.
- ke-du**, a kind of tree, having a yellow wood with properties that cause violent irritation to many individuals.
- ke-du**, to slice, used of the downward stroke of persons fighting with daos, or of the stroke of a pig with its tushes.
- ke/du**, to fail to bear proper fruit after flowering, used of Job's Tears (*coix lachryma*) only.
- ke-duo**, (1) to mouth, mumble (of a toothless man trying to chew).
(2) to try, test.
- ke-duo**, a kind of thatching grass (? a species of andropogon).
- ke-duo**, parallel; side by side.
- keduoyâ (keduchâ)**, a little (either as noun or adverb).
- kedzahuru (horu)**, a kind of shrub which yields black fruit (*Leea* sp.).

kedzi (1) to wind (as thread).

(2) to be entangled (as by the feet in creepers).

kedzieguo (**kebigo**), competitive shooting or throwing at a target.

kedziekerie, underdone, hurriedly and inadequately prepared (of food or drink principally).

kedzierü, a collective noun applied to persons responsible for the act of displacing and misplacing articles without reference to one another.

kedzo (**kedzie**), flying squirrel (*pteromys*).

ke⁻dzü, short.

ke/dzü, wavering, hesitating.

ke-dzü, flail.

ke\dzü, hoe.

ke_dzü, poor.

ke_dzü, meet.

kedzükri, in haste.

kedzüle, optimistic (with implication that the optimism is an excuse for inaction).

kedzülie, talkative, vociferous (particularly of persons whose tongues have been loosened by liquor).

kedzüluo, casual; careless; not strict in religious observances.

kedzürhi, sloppy, watery (of cooked food).

kefü, a small tree dwelling mammal (probably a *paradoxure*).

kegå, sprain.

kegå, tighten, make taut.

ke⁻ge, to twist, to turn (e.g., screw or unscrew); to shift (as a post) with a lever applied to the foot of the object shifted.

ke-ge, (1) to sprinkle; to scatter in drops.

(2) a cover, lid.

ke-ge, wave, flourish; to spin.

ke-gei (**kegi**), fight; make war (both noun and verb).

ke/gei (**kegi**), fight, quarrel (without weapons of war—applied to private fighting as distinct from warfare).

-kégei (**kégi**), a cut made as by a saw (< *gei*=saw).

-ke/gei (**kegi**), to sharpen slightly, put an edge on.

kegou (**kegu**), hanging; hung up; entangled (< *gou*).

kegu or **kegou**, creeping; one that crawls (< *gou*).

kegu, to break, crunch, champ (of beads or cowries rubbed together in the hand, or of water-snails put whole into the mouth with their shells).

ke-hie, (1) to warn.

(2) to raise, revive (as of an old law suit).

ke\hie, (A) feast.

(B) (1) to compete in game; a popular game among the Angami girls resembling skipping but without the rope. The jumping is continued till the loser tires and gives in.

(2) the game itself.

ke_hie, child's wrapper; a cloth for putting round the child when carrying it on the back.

kehie-kehü, higgledy-piggledy, hugger-mugger.

ke/hou, whoever, whatever.

ke-hou (kehü), to bend.

ke_hou, (1) to assemble; to hold meeting.

(2) assembly; meeting (n.).

kehoukeruo, carelessly; remorsefully.

kehouki, conventicle, church, club.

ké-hu, a singing, "ho-ho"-ing.

ke_hu (kehuo), to breathe upon.

ke_hu, to dry (paddy).

ke_hü, to wave one's cloth, to shake (trans.).

ke/hü, failure (to pay a debt at the date agreed upon).

ke_hü, urge; to incite; (in jumping) to break away, by alighting on it, the ridge of earth formed in front of the last jumper's footprints.

ke_já, fault.

ke-já, to strike one thing against another.

ke_já, to pollard or prune a tree or stump so that all the side shoots are taken off leaving only the main stem; if applied to bamboos *ke-ja* implies the cutting off of all the bamboos in the clump, leaving only their stumps.

kejü = *kedzü*.

ke_ka, (1) to flick, flip, poke, push (with a cane, bamboo or other pliant instrument) (cane: *thepe*).

(2) to pick with a needle or knitting needle (as in knitting or darning).

ke/ka, elevate (from a horizontal or oblique position to an oblique or more nearly upright position: if raised to the vertical *pedou* is used, not *keka*).

ke_ka, loss, usually in sense of financial loss as on a contract.

kekakemhe, doom, ruin, extinction (used only in oaths or abuse, < *keka* = loss and *kemhe* = burnt out ashes).

ke_kha, last (as of a line of men marching or birds flying).

ke-kha, prohibition, to prohibit.

ke_kha, clip, bind, fasten (used of any encircling fastening, as a bracelet or wrist watch, of binding or clipping with metal clips; also of lashing with bamboo ties that encircle (*e.g.*) a rail).

ke/khou (vb.), to push, elbow, close up.

ke-khou, knock, rap (with the knuckle).

kekhra, that which is spread to cover or receive an object on a clean surface; may be applied also to a flat surface of prepared earth.

kekhravü, stupid, idiotic, untactful.

ke_khrá, sour, tart, acid.

ke_khrá, repeat (of repeating correctly words uttered first erroneously).

- ke-khrá**, an inferior kind of thatching grass (probably a *saccharum*).
- ke-khrá**, to beat (as for game in the jungle, making a noise, cf. *kekhrü*).
- ke-khre**, containing salt, saltish, sufficiently salted to be palatable.
- ke-khre**, (1) the ham, the hollow at the back of the knee, the popliteal space (generally of humans, cf. *phika*).
(2) to fold.
- ke-khre**, reduction (in price); reduced price.
- kekhrakelhe**, relish; savoury food.
- ke-khrie**, ferociousness; aggressiveness.
- ke-khrie**, love, affection, liking.
- ke-khrie**, intrigue, fornication, liaison, illicit love affair.
- kekhriekhrü**, barefaced; shameless; impudent.
- kekhru**, to shake or work about an object that is loose in its socket (as a loose tooth, or handle).
- kekhru-tsü**, burial-place, cemetery.
- ke-khrü**, lavation, washing (i.e. the act of washing something).
- ke-khrü**, (1) tough, hard, durable.
(2) stale, bad (of food).
- ke-khrü**, a prop, an object placed under another to elevate it.
- ke-khrü**, to beat (as for game in the jungle, but quietly, shaking trees, etc. cf. *kekhrá*).
- kekhrüdzü**, awkward, unskilful, clumsy, stupid.
- ke-khruo**, help; assistance.
- ke-khruo**, subscribe (to fund. in cash or in kind).
- kekhuosi**, half-hearted, soft, weak (of person working without energy).
- kekinyi**, a visit of ceremony paid by one community to another to keep up ancient alliances and cement new ones. Paid after the Sekrengi genna.
- ke-kie** (vb.), (1) call (to some one at a distance).
(2) ricochet.
- ke-kie**, (n.) parroquet.
- ke-kie**, (*ke-kiâ*), (1) call, act of calling.
(2) act of showing.
- ke-kre**, derisive, mocking.
- ke-kre**, laughter, mirth.
- ke-krei**, another; other; different.
- ke-krei**, ring; tinkle.
- kekrie**, to whisper, speak with bated breath (on account of awe).
- kekriepie**, to carry a thing together, i.e., when two or more persons combine to do so.
- ke-kru**, flow, current.
- ke-kru**, **kekru**, to eat or drink from a single dish or cup.
- ke-kru**, **kekru**, unimpaired; without hole or fault.
- kekruhe** (adj.), uniform, harmonious.
- ke-krü**, wrong, mistake, error.
- ke-krü** (adj.), rotten (of a hole in a tree where a branch has

- rotted) or of any decayed vegetable matter, also of an ulcer on a living body.
- ke\krü**, fall, act of falling.
- ke_krü**, (1) adj., dark (applied to the darker patches of variable or fluid materials such as water, and particularly cloud.
(2) civet cat: in particular the lesser civet, *viverricula malaccensis*.
- kekrüdâ**, an offensive smell, resembling that of the civet cat, which sometimes attaches itself to the clothes or bodies of persons entering the jungle.
- kekrükrüvâ**, the larger Indian civet (*viverra zibetha*).
- ke_la**, find out by exhaustive enquiry.
- ke la** (vb.), (1) unroll.
(2) sort out.
(3) give back, return (trans.).
(4) return (intrans.).
- ke/la** (n., adj.), last.
- ke/la** (vb.), save, rescue, recover.
- ke\la** (vb.), to cause to feel something hard or rough, e.g. of a pebble slipped down the neck, or a stone under an apparently smooth surface, or of the proverbial pea under the princess's mattress.
- ke_la** (vb.), (1) spill.
(2) abuse, or scold, reciprocally.
- kelakelie**, (1) to search thoroughly, examine in detail.
(2) as a noun "Salvation" (a modern use).
- kelakelieu**, Saviour (a recently made word).
- kelalie**, saved; rescued.
- kelalie**, slow, lazy, inattentive.
- ke_lâ**, thread; yarn.
- ke-lâ**, to waggle (used of causing the end of any long and thin object to oscillate).
- ke-lâ**, a kind of tree (? a magnolia).
- kelâda**, weak-minded, mentally defective.
- kelâguo**, the cocoon and pupa of a kind of insect.
- kelâguo**, *eugenia*, a kind of tree (one of the *myrtacæ*) on which the pupa *kelaguo* is found.
- kelâshü**, blue.
- kelâyhu**, clumsy: inept
- ke_le**, cause to tremble or quiver, shake gently.
- ke\le, kele**, thought; opinion; understanding.
- ke\le**, to make a hole in the ground by prizing out stones and scraping out the earth below them.
- ke-le**, (1) (adj.) hot; >by euphemism.
(2) the pudenda, male or female.
- ke\le, kele**, to pinch, nip with fingers.
- ke_le**, (1) to nibble, bite with the front teeth.
(2) to remain without food.
- ke_lei** (ke_li), marrow.
- ke/lei**, single out (for punishment or blame which others should share).
- ke-lei** (ke-li), rest, repose.

ke-lei, to throw (of a stone or lump of earth or any compact object, not of a stick or a spear).

keleivünuo, a chicken with scanty feathers.

keleza, to divide into equal parts (of funeral meats divided among relatives).

kelha, spread.

ke\lhe, (1) to feel excess of heat.

(2) to inhale, draw in (of breath taken sharply into the lungs, or of water drawn into a squirt).

ke/lhe (n.), dainty or tasteful food.

ke/lhe (vb.), disrobe; let fall the cloth from the shoulders.

kelhi, (1) awry (adj.): >(2, vb.) to cold shoulder, boycott, to refuse participation in anything (on account of ill feeling).

kelhie, malicious, mischievous, wanton.

kelhila, to go back on a bargain.

kelhisu, to bid as at an auction: to compete at a bargain.

kelhite, to seal a bargain by paying earnest money.

kelhi-tha, bargain; discussion of the price in buying and selling.

Hence (? sarcastically)—

kelhi-tha, cheapen, beat down, make disingenuous offers much below the real price.

ke-thou (**kelhu**), throw; cast.

ke-lhou (**kelhu**), (1) nature, physical condition or appearance.

(2) phratry, subdivision of tribe (rare).

ke-lhou, do earth-work (as in making an embankment or trench).

kelhouzha, age.

ke-li, squirrel.

ke/li (**bvürü**), bull-roarer.

ke/li, surplus, remainder.

ke-li, sing.

ke-li, *felis chaus* or *affinis*, one of the jungle cats, said by Angamis to suffer from chronic dyspepsia, whence persons similarly afflicted seek to drink from the drinking vessel of a man who has killed one, which cures their complaint. When in the throes of stomach-ache this feline shrieks aloud and is so obtuse to all but its sufferings that a man may catch it alive.

ke-li, exchange.

ke-lie, tickle.

ke-lie, call, send for: send order for.

ke-lie (**kelia**), wear round the neck.

-kelie (in compounds) implies a personal contact or possession, < *lie* = take.

kelikeria, a kind of squirrel possessing a disagreeable smell.

kelishüshanuo, a kind of cat or rodent (?) reported to destroy elephants by gnawing at their stomachs (< *keli* = a wild dyspeptic cat).

kelivachü, a severe colic pain (< *keli*, the wild dyspeptic feline, and *vachü*=stomach-ache).

ke⁻lu, to pick off stones from the earth.

ke-lu, salute; greet.

ke-lu (khulu), a species of small boring beetle which eats away dry bamboos and timber; the holes made by such insects.

ke⁻lu, (1) Foreign object in the eye; smarting in the eye caused by such particle.

(2) bitterness, rankling caused in the mind by offensive words, or by the sight of a personal enemy.

kelou, the grubs of various beetles, found in the wood of dead and living trees and used as food, chiefly or perhaps exclusively those of lamellicorns such as the stag-beetle (*lucanus*) and the Hercules beetle (*dynastes*). † >

kelouga, cowardly; timid.

ke⁻luo, keluo, amiable, good-natured.

ke-luo, keluo, fat, obese.

keluohuo, (1) dumb (of human beings);

(2) barren (of trees, crops, etc. that fail to bear fruit).

keluokela, frank, candid, sincere.

ke⁻ma, to feel discomfort, be uncomfortable (as with ill-fitting clothes or on account of some irritation).

ke-ma, (1) (vb. intrans.) unite (e.g. of the sides of a cut or wound); congeal (as of

feathers with bird-lime, or cloth with glue).

(2) (in compounds with trans. vb.) join, cause to join (e.g. *biekema*=place in contact).

keme⁻bă, blunt (of the point only, not of the edge; opp. of *kemethe*).

keme-bă, rotten.

keme⁻bă, kissing.

keme⁻chü (vb.), recriminate, indulge in reciprocal abuse (cf. *infra*, *kemehie*).

keme⁻chü (adj.), (1) idle, lazy.

(2) dirty, filthy, ugly, disgusting.

keme⁻chü (adj.), clean, neat.

keme⁻da, to work in each other's field alternatively.

keme⁻da, cunning, adroit, deceitful.

kemehe, pale, wanting in pigmentation (of flesh or leaves not exposed to the sun); yellowish.

keme⁻hie (vb.), recriminate in loud tones, shout reciprocal abuse (cf. *supra*, *kemechü*).

(adj.) rough (of surface, as sand paper).

(n.) that which a dog or pig has bitten and dropped or left (usually of food, etc.).

keme⁻hie, within reach, reachable, able to reach (< *meh⁻e* q.v.).

keme⁻hou, lecherous (of fowls, also of human beings).

keme⁻hou (adj.), desirable, making covetous (of the property coveted).

keme⁻hou, to fight as cocks do; also of persons quarrelling or back-biting.

kemehü, to take fresh air, go out for change of air (after remaining at home on account of illness, etc.).

keme-lâ (noun), moaner, groaner, 'dismal jimmy' (in the phrase *kemelâ kemerei* = 'does nothing but moan' of a very sick man, also metaphorically = nothing but a grumbler).

keme-lâ, **kemelâ** (n.), that which is asked for (v. rarely if ever used).

keme-lâ (adj.), crazy, idiot, half-witted; stupid.

kemelha, boastful.

keme-luo, one that is soft or fragile (in contradistinction to others that are less so).

keme-luo (noun), that which is stout (usually of thread, rope, etc. in distinction to weaker threads, etc.).

keme-luo, that which yields a lather (as soap).

kememâ, tasteless.

keme-na, that which emits a stench or stink.

keme-na, dandy; fop; vain; flirtatious (always with reference to a person who is seeking to make an effect on persons of the opposite sex).

kemenya, a soft grained rice used particularly in brewing.

kemepo, reckless, rash, hasty.

kemerarü, make red; usually in compounds, as in the phrase *bie-kemerarü* vb. = scratch until red (with blood).

keme-re, narrow place, ravine, gorge.

keme-re, face to face, with the face near that of another, as when whispering.

keme-re, fidgety, finicky, restless, erratic; used also of persons eating a little of this and a little of that instead of making a proper meal.

keme-rei, meet and twist together, vb. intrans., used of birds flying round one another when mating or fighting, of lovers linking arms, but always with the implication of the twisting of two strands which meet from opposite directions.

keme-rei, the state of being busy.

keme-rie, that which is red.

keme-rie, inspiring fear or awe, dreadful, terrible.

keme-rü, purblind.

keme-rü, circular.

keme-rü, reciprocal expectation, as of two persons awaiting one another, or arranging to meet.

keme-rü, destitute.

keme-rü, hunger.

keme-ruo, (1) a reciprocal act of fondling with the hands between two persons, used also of animals;

(2) a kind of painful boil or tumour which the sufferer cannot leave alone.

keme-ruo, roan; a colour approaching brown or grey composed of hairs or spots of different colours giving a uniform appearance to the eye.

kemethe, pointed, having a sharp point (v. *kemebd*).

kemeya, wideness.

kemeyâ, reciprocal licking.

kemeyâ (kemyengâ), prodigal.

keme⁻yie, famous.

keme⁻yie, (**kemeli**), cheapness.

keme⁻zhie, trouble.

keme⁻zhie, weariness.

keme⁻zhie, pitiable, miserable.

kemezo, keep company (a euphemism for *ke⁻khrie*).

kemhe, a blowing (with the breath).

ke⁻mie, polish; to give the finishing touch.

ke⁻mie, pestle for pounding rice.

Notes¹ on the Vakatakas of the Central Provinces and Berar, and their Country, 4th to 8th Century A.D.

By T. A. WELLSTED.

It is comparatively speaking only within recent years that any detailed attention has been paid to the Vakataka dynasty. Epigraphical research is gradually revealing the very important rôle played by these rulers in Gupta India and it is hoped therefore that the following notes may be considered of interest. The sites described below are linked by Gupta type brick remains and their period further determined by evidence afforded by sculptural and epigraphical material.

A number of the settlements of the Vakataka period are indicated on the general map of the district, Plate 5, fig. 1.

Of these the townsite at Mansar is the only one that has so far been investigated in any detail, but a general description of the group will not be out of place.

Khindsi, Bheugarh, and Ghughusgarh appear to be mainly outpost settlements situated on high ground commanding a wide view of the surrounding country.

At Khindsi there is the ruin of a rough-stone and brick fort on the hill top immediately to the west of the Sur river gorge and 300 ft. above the plain level². Below this on the north side of the hill and now normally covered by the water in the irrigation reservoir is a settlement the extent of which it is impossible to determine.

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² Similarly at Pavnār in Wardha District is another highly interesting site, with a high strong old fort overlooking a river. The identification of this place with Pravaraṇpur of the Vakataka copperplates is highly probable, in which case it may be considered as the city founded by Pravarasena I, an early Vakataka ruler and the capital of the dynasty—*K. N. D.*

At Bheugarh no brick remains have as yet been located, but the hill which rises nearly 400 ft. from the plain is extensively terraced and fortified with drystone walling.

Ghughusgarh, where there are stone and brick remains, is 400 ft. above the river level and seems intended to guard the northern approach to Nandpur from the Satpura range, in the foothills of which it is situated.

Across the river from Nandpur and Ghughusgarh are scattered brick ruins in thick jungle, the full extent of which still remain to be determined.

Of the two major sites Mansar and Nandpur, the latter although apparently smaller, occupies a far stronger position and unlike the former has been extensively fortified.

NANDPUR
NANDIVARDHANA.

Advantage has been taken of the hilly nature of the site to ring the town with massive drystone walling which whilst nowhere of any great height varies in width from 10 to 20 ft. at the top and is so placed that every use is made of the natural slope of the ground, with the result that an attacking host would be confronted with almost impossible slopes of considerably more than 100 ft. in some cases.

These fortifications are roughly in the form of an equilateral triangle, apex to the south, with the length of each side about 1 mile.

The site is bounded on the W.S.W. by the Dhobigota nallah and on the E.S.E. by the Pench river and is obviously one of great strength.

Preliminary reconnaissance of the walled enclosure suggests that not all of it was used for erecting buildings and whilst part is definitely unsuitable owing to its hilly nature, it is possible that other apparently suitable spots, now blank, were once occupied by huts of flimsy type which must have perished without leaving any trace.

There seems at any rate to have been an overflow to the south bank of the Dhobigota nallah, as brick fragments are found in one or two fields there.

In the southern portion of the walled enclosure is the ruin of a large building, which, from its layout and unusual size, was possibly a palace. Whilst nothing now remains above ground beyond brick rubble the lines of the walls are easy to follow and are shown in the plan, Plate 6, fig. 2.

The existence of extensive ruins in association with the name Nandpur (Nandipura) is significant. One of the copper plate grants¹ of Prabhavati Gupta, the Vakataka Queen Regent, was issued from Nandivardhana, which has been identified tentatively with Nagardhan, 4 miles to the south of

¹ Poona plates. *Ep. Ind.*, Vol. XV.

Ramtek.¹ Brick fragments are certainly found in a field near Nagardhan but none appear to be of sufficient size to warrant the supposition that they are derived from the large 'Gupta' type bricks, about 18" x 9" x 3", such as occur so plentifully at Mansar, Khindsi, Nandpur, and Ghughusgarh. In fact the Nagardhan bricks appear to be recent and are indistinguishable from the brick debris at the modern fort in that village² and there are thus stronger grounds for supposing that at Nandpur we have the remains of the ancient Nandivardhana,³ and not at Nagardhan as hitherto suggested.

The occurrence of 'Gupta' type bricks and the ruins of what was assumed to be a Buddhist monastery near Mansar were first noted many years ago⁴ but no proper examination of the area would appear to have been made. In 1928 a certain amount of interesting material came to light and led to the examination of the whole area surrounding Mansar tank, with the result that the traces of an extensive townsite were discovered.

The extreme limits of occupation were roughly 2 miles from east to west and 1½ miles from north to south, and whilst a large part must have been thinly settled, the evidence of close settlement to the east, south-east, and south of the tank is sufficient to indicate a town of some size. (Plan, Plate 7.)

During the course of investigations a number of carved stone fragments were found at surface on the hill slopes to the south of the lake⁵. These are assignable to the early centuries of the Christian era and a few are shown in the illustrations, Plate 11. One of these, of some interest, is a fragment of stone, cut with characters of 5th century A.D., shown in Plate 6, fig. 1.

Much of the original layout of the site is now difficult to trace, particularly in the eastern portion traversed by the railway, from which ballast has been quarried for many years and where since investigations started almost all traces have gone, thanks to villagers, ballast work, and erosion.

In the middle section, monastery site and hill B on the plan, much more remains. Hill B was apparently overbuilt with temples and all surface finds of sculpture have come from

¹ R. B. Hira Lal, Inscr. : C. P. and Berar, No. 4.

Adopted also by K. P. Jayaswal, *J.B.O.R.S.*, XIX, 1 and 2.

² The Nagardhan bricks are almost exactly half size, large fragments are therefore almost indistinguishable from small fragments of 'Gupta' type brick, and unless great care is taken in examination, misleading conclusions are easily arrived at.

³ Two engraved seals have been found at Nandpur; one reading '—deva' and the other 'Rudradeva' in characters of the 3rd and 4th century A.D. They date therefore to about the time of Pravarasena I. Rudradeva may be the alternative name of Rudrasena I, the successor of Pravarasena, but the absence of any titles on the seal makes it unlikely that it was a royal one.

⁴ P.W.D. note 112 of 1906, and *Nagpur Gazetteer*, 1908.

⁵ Some of these are now in the Nagpur Museum.

there. Such as have been found exhibit considerable skill and mastery in execution and from the quantity and diversity of character must represent a very large number of images. The stone used is a fine-grained aluminous sandstone, easy to work and permitting a fine finish.

A notable feature of the town is the mile-long stone facing of the Mansar tank, drybuilt of large boulders and stone slabs, reaching its greatest development at the monastery site ; this is shown in Plate 12.

In marked contrast to Nandpur there is at Mansar no evidence of fortification, though the surrounding hills appear to have been occupied by watch-posts. The western post (WO on plan) was possibly in signal communication with Bheugarh 8 miles to the north-west, the eastern post (EO on plan) may have been similarly in touch with Kindsi 6 miles to the east, whilst the main hill to the north and hill B to the south of the tank overlook the country for many miles. The old north road runs through the eastern end of the town and in view of the persistence of trade routes is almost certain to have formed one of the original lines of communication. It is traceable for a distance of nearly 20 miles.

This is a piece of raised ground at the eastern end of the tank and is nearly 11 acres in extent. In the centre is a large mound which rises to a height of 40 ft. above the level and resembles the ruined stump of a Buddhist stupa in its general appearance, an impression which is not confirmed by a close examination, which reveals traces of a rectangular building measuring 150 ft. \times 85 ft. in the centre of the mound. It is possibly therefore the remains of a *vihāra* or even of a secular building with surrounding courts, but whatever its character, which can only be revealed by excavation, it obviously covered a group of buildings of great importance.

Until quite recently the site has been used by villagers as a brick quarry, so much so that it has been possible to obtain a very tolerable idea of the ground plan as revealed by this destruction. This is shown in Plate 8.

The site is so situated that it receives no drainage from outside, soil erosion thus playing a very small part in the silting of the courts, which must be due largely to the debris from the buildings. The inner court of nearly 3 acres is silted to a depth of at least 5 ft. and the outer court of over 7 acres to a depth of about 3 ft.

The width of the walls varies from $1\frac{1}{2}$ to $4\frac{1}{2}$ ft. and although walls are nowhere visible above ground, judging from the excavations made by villagers, wall heights of 11 or 12 ft. including foundations, still remain. Although so much damage has been done in the past there is evidence that considerable lengths of wall have escaped and even where bricks have been

quarried the foundations have probably escaped in many cases by the caving in of earth from the sides. The bricks used in this construction are of typical large size, measuring about $17'' \times 9'' \times 3''$, but are not strictly uniform, size variations of $\frac{1}{2}''$ or so in any of the dimensions being common.

The peculiar construction of a small brick lined depression exposed in a cutting at the Mansar manganese mine attracted attention and led to a careful examination. Part was undoubtedly lost due to mining work but enough remained to make the mode of construction quite clear. It is shown in plan and section in Plate 9, and its location at S in the town plan, Plate 7.

The centre of the depression was occupied by a complex of earthen pots, horse bones, charred wood, and earth. Most of the pots were in small pieces, hopelessly mixed up, and gave the impression of having been arranged in a heap, probably of several layers and then smashed by the force of earth from above. This rendered the separation very difficult but sufficient pots were obtained complete or in sufficiently large fragments to allow of the identification of 15 shapes (see Plate 10). From the quantity and character of the residue it is certain that several times this number of types were originally represented and the total number of pots were possibly a couple of hundred.

The following objects were recovered from the complex:—

1. A fragment of porous, brick (!), of pumice-like appearance, flat on one side and rounded on the other; size $4\frac{1}{4}'' \times 2\frac{1}{4}'' \times 1\frac{1}{4}''$.
2. A dark-red stone implement, smooth but unpolished, with a semi-circular razor-like edge; size $1\frac{3}{4}'' \times 1\frac{3}{4}'' \times \frac{1}{2}''$.
3. A light-red stone implement, smooth and polished, with blunt edges; size $5'' \times 2\frac{1}{4}'' \times \frac{3}{4}''$.
4. A circular stone grinder, diameter 9'', thickness 3'', with a depression in the centre of the upper surface 2'' across and $1\frac{1}{2}''$ deep.
5. A triangular brick, texture very fine and smooth, colour light brick-red, edges rounded, and from the centre of the base which at this point appears to have been pared away apparently by a knife after manufacture, three parallel lines running to the apex; size, height of triangle $5\frac{1}{2}''$, base $4\frac{1}{4}''$, thickness $\frac{3}{4}''$; lines depressed in the brick $\frac{1}{16}''$ and $\frac{1}{2}''$ apart.
6. A terra-cotta human figure of coarse texture, $2\frac{1}{2}''$ height possibly intended as a toy.
7. A copper toe (?) ring, made from a single piece of coarse wire in the form of a three-ringed spiral (probably modern).
8. Charred wood fragments.
9. Three circular stone discs, two 4'' dia. by $\frac{3}{4}''$ thick, one 3'' dia. by $\frac{3}{4}''$.
10. Horse bones, small fragments mostly badly decayed, but some teeth readily recognizable.

It was the uncovering of this and its destruction during mining work, due to ignorance, that led Brick Shaft. eventually to the examination of the Mansar area, the results of which are given in these notes.

The location is shown at T in the town plan, Plate 7.

This shaft reached to within 2 feet of the surface and extended downwards to the junction of the surface soil with bedrock 14 feet from the surface, its total height therefore was 12 feet.

Of square plan, with walls of single brick construction, the space enclosed was about $4\frac{1}{2}$ sq. ft. The bricks were of large size, $18" \times 9\frac{1}{2}" \times 3\frac{1}{2}"$. Near the bottom, making a lower chamber 15" deep, was a false floor of brick. The bottom of the lower chamber was also paved with brick and rested directly on bedrock.

In the upper part of the shaft was filled earth from which was recovered a small snake image of greenish soapstone and some pottery¹.

Beneath the false floor was a large spherical pot, 1 ft. in diameter containing ashes; with it also were several small pots. Altogether 17 complete pots were recovered, some of which are shown in the photograph, Plate 5, fig. 2.

It is presumably a burial shaft.

As the Vakatakas favoured Saivism, the presence of a number of lingas at Mansar and elsewhere is to be expected. At Mansar no less than 6 have been found, some apparently still occupying the ground where they were originally erected. At Khindsi there is another, now propped up outside a small shrine close to the irrigation embankment. It has obviously come from the settlement close by, now submerged by the reservoir. One has also been found at Nandpur. These 8 lingas are all very similar, about 5 ft. high with a rounded upper part of 1 to $1\frac{1}{2}$ ft. joining directly to a square shaft.

On the whole, decay at Mansar has gone so far that excavation is not likely to yield much in the way of results, with two exceptions, the Monastery and Hill B sites, which are both very promising. At Nandpur the situation is somewhat different as the ruins have become jungle-covered, and being off the beaten track are likely to have escaped brick quarrying and destruction by villagers. Promising excavation sites here appear to be the supposed palace site and a large raised mound some distance to the north-east of it. At this latter place there are the remains of buildings on a square raised site, with a large linga embedded in the ground. It is presumably a

Prospects of
Excavation.

temple area. Judging from the fragments visible in the soil it is likely to yield amongst other things a good deal of pottery.

A claim has been put forward that at the time of Pravarasena I the Vakataka rule extended over the greater part of northern and southern India, with the capital at or near Ganj-Nachne in Central India and that only as a result of the rise of the Gupta Empire were the Vakatakas driven to seek their main fortune in the south.¹ That this powerful empire should have been paralysed by the defeat of feudatories at the 'battle' of Kausambi and have remained in a state of inaction for at least one, probably two, years until the return from the south of Samudra Gupta and the subsequent 'battle' at Eran seems most improbable. If the Vakatakas had been paramount in the north it is hard to understand why, after Kausambi, in which they themselves were not involved, they were apparently unable to overrun Gupta territory and at the least seriously embarrass Samudra Gupta's southern campaign. Failing that, at the 'battle' of Eran, with half the empire already lost, a final desperate effort to retrieve fortune would surely have been made, which would, on the defeat and death of Rudrasena I have resulted in complete collapse, bankruptcy of the State, and the revolt of the south. The remarkable recuperation under Rudrasena's successor Prithivisena I shows the resources of the State practically intact and must indicate that whatever influence the Vakatakas may have had in the north the main strength of the empire was in the south.²

As a result of the 'defeat' at Eran influence in northern India ceased but even so they appear to have been considered so important that their neutrality in the north, essential to the consolidation of the Gupta power, had to be ensured by the betrothal of Samudra Gupta's grand-daughter to Prithivisena's son.³

Further, Vindhyaśakti, founder of the dynasty, is recorded as a Naga general whose conquests were largely in the very territories afterwards recognized not only as integral and important parts of the Vakataka dominions but also to a great extent as the 'home' districts.⁴

It is difficult to avoid the inference that what he conquered for his masters he kept for himself. It explains the administration of outlying districts from the Central Provinces⁵ and

1, 4, and 5. K. P. Jayaswal, *J.B.O.R.S.*, XIX, 1 and 2.

² Witness the rapidity with which the Gupta Deccan province passed again under the Vakatakas and also their defeat of the Kadambas.

³ In view of the great power of the Guptas and the high importance, from the point of view of prestige, attached to the marriage of a daughter of an imperial house, the importance of this marriage appears to have received less attention than it deserves. Coming after the 'defeat' of the Vakatakas at Eran it is a remarkable tribute to the anxiety of the Guptas.

renders the location of the capital at Ganj-Nachne unlikely on account both of its northern position and its situation in feudatory territory.¹ The last condition might perhaps be justifiable if the political position in the north was stable, which judging by the ease with which the Guptas rose to power it was not.

On the whole therefore the Vakatakas would certainly appear as rulers whose main strength lay in the south.

A suggestion has been made that the capital was near Ramtek² and it certainly appears to have claims to consideration: situated in the Nagpur country in which as "home" territory the capital would be expected; roughly at the geographic centre of the sphere of influence; intimately associated with the known records³; and with the traces of extensive settlements in the near neighbourhood, Ramtek must have occupied a position of great importance in the Vakataka empire.

¹ *G.I.*, No. 53 and 54; *E.I.*, XVII, 12. Inscriptions of Vyaghradeva, feudatory.

² *J.I.H.*, VI, Vakataka Supplement suggests that the capital was near Ramtek at the time of Prabhāvatī Gupta and Pravarasena II.

³ Plate 1, No. 1 is a place map of the known records which analyse as follows:—

Feudatory	..	7, (Ajanta 3, Nachne 4).
Royal	..	1 each, Jubbulpore, Chhindwara, Seoni, Balaghat, Chamak, and Riddhapur *
		1 from Nandivardhana } both near
		1 found at Khindsi ** } Ramtek.

* Riddhapur plates were issued at, and the Mansar 5th century fragment was found near, Ramtek.

** Usually recorded as from Ramtek. Mr. Suboor of the Nagpur Museum informs me that it was actually found during the construction of the reservoir at Khindsi.

In view of the supposed predominance of the Vakatakas in the north it is disappointing that no record, even feudatory, has been found further north than Nachne.

NOTE — *Inscriptions*. Since writing the above I have been fortunate in securing an entirely new Vakataka copperplate grant comprising four plates, ring and seal complete and in excellent preservation. Professor Mirashi of Nagpur University, who has kindly undertaken the editing of these plates and who hopes to publish them shortly, informs me that they record the grant by Pravarasena II, of a village to a Brahmin. The plates were issued from Naratangavari in the 23rd regnal year. The find-spot is about 8 miles south of Katangi in the Balaghat district, Central Provinces, 31 miles W.-S.W. of Balaghat and 34 miles N.E. of Ramtek. On the map of inscription find-spots its position would be roughly halfway between Ramtek and Balaghat and a little to the north of a line joining them.

T. A. W.

*Ramtek, C.P.,
4th July, 1934.*

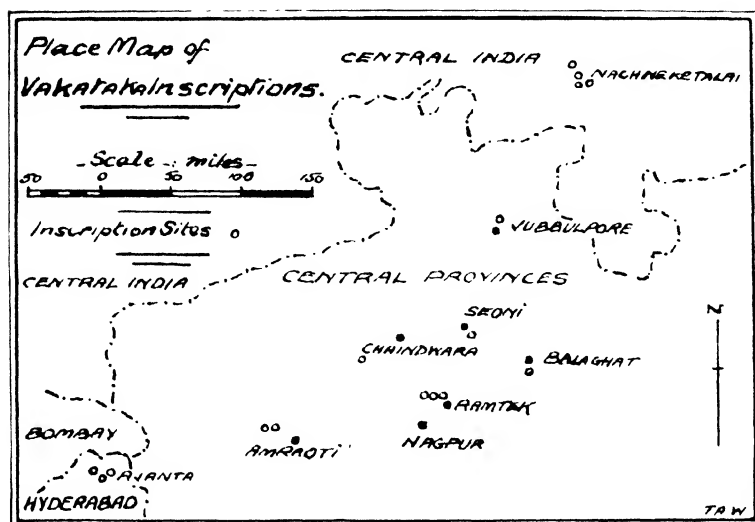


FIG. 1. Place Map of Vakataka Inscriptions.

Inscriptions

Area.	Place.	Type.
AVANTA	AVANTA & GHATOTAKHA CAVES	ROCK INSCR "
AMRAOTI	RIDDHAPUR CHAMMAK	COPPER PLATE "
AMRATAK	KHINDSI NANDPUR* ITANSAK	" ONESTONE
CHHINDWARA	DUPIA	COPPER PLATE
SEONI	SEONI (near)	"
BALAGHAT	BALAGHAT (near)	"
VUBBULPORE	VUBBULPORE	"
NACHANE TALAI	NACHANE TALAI & DURENA.	ROCK INSCR. "

* Puna plates of Queen Prabhavati Gupta; find spot unknown, but issued from Nandivardhana.

FIG. 2. Vakataka Inscriptions.

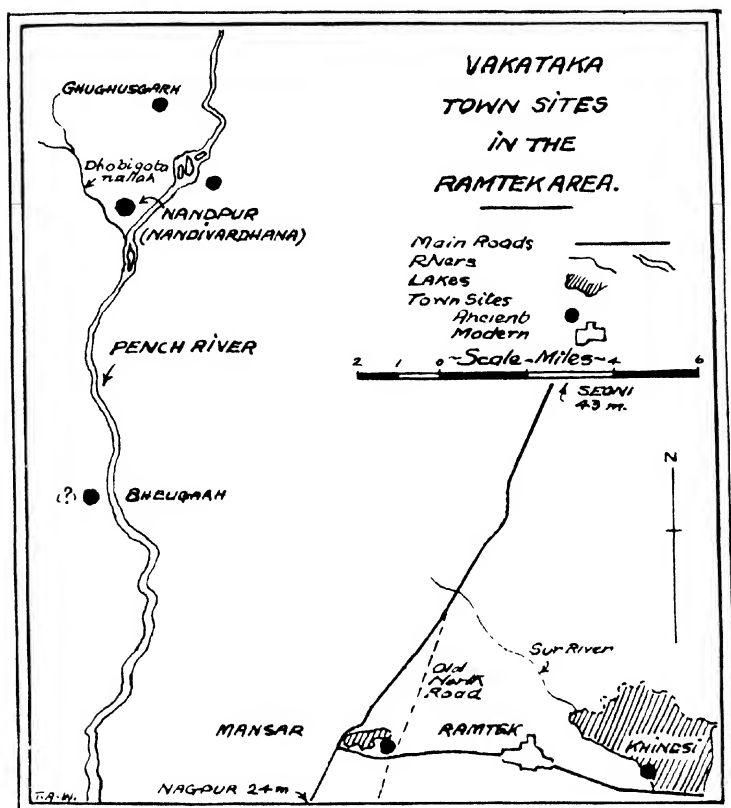


FIG. 1. Vakataka settlements near Ramtek.



FIG. 2. Potteries and Lingas discovered at Mansar.

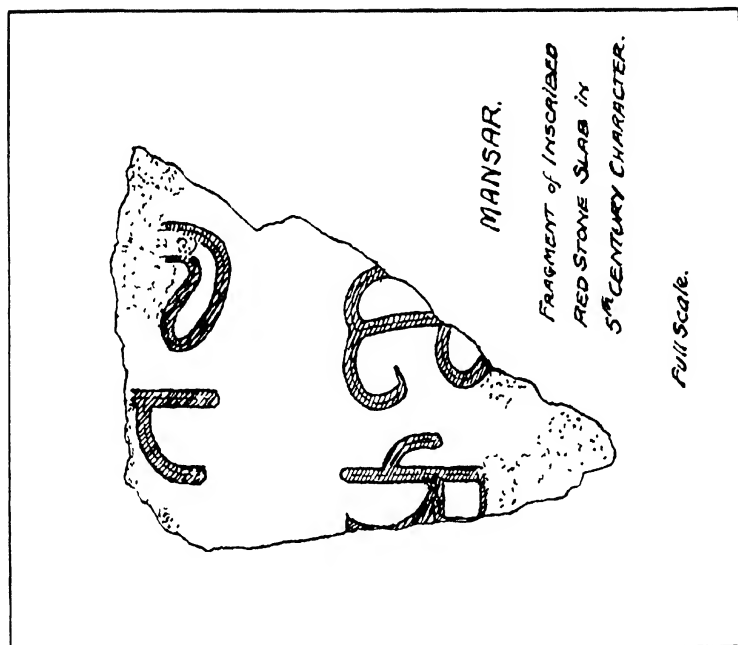


Fig. 1 Fragment of Inscribed Stone found at Mansar.

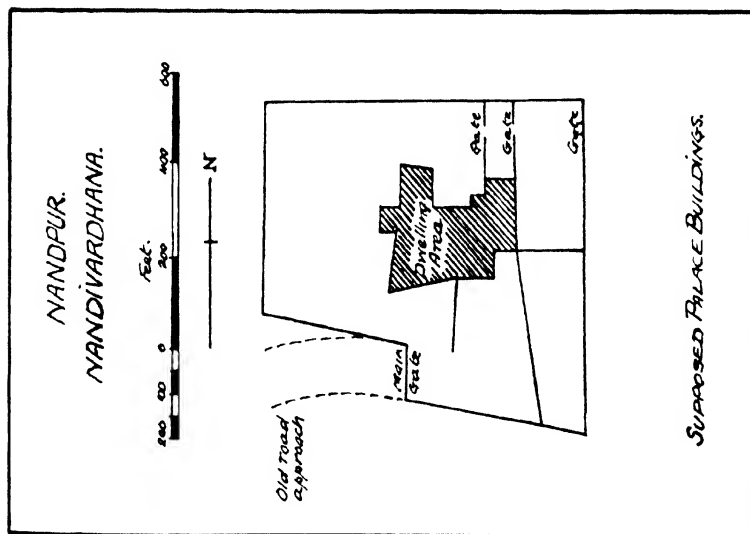
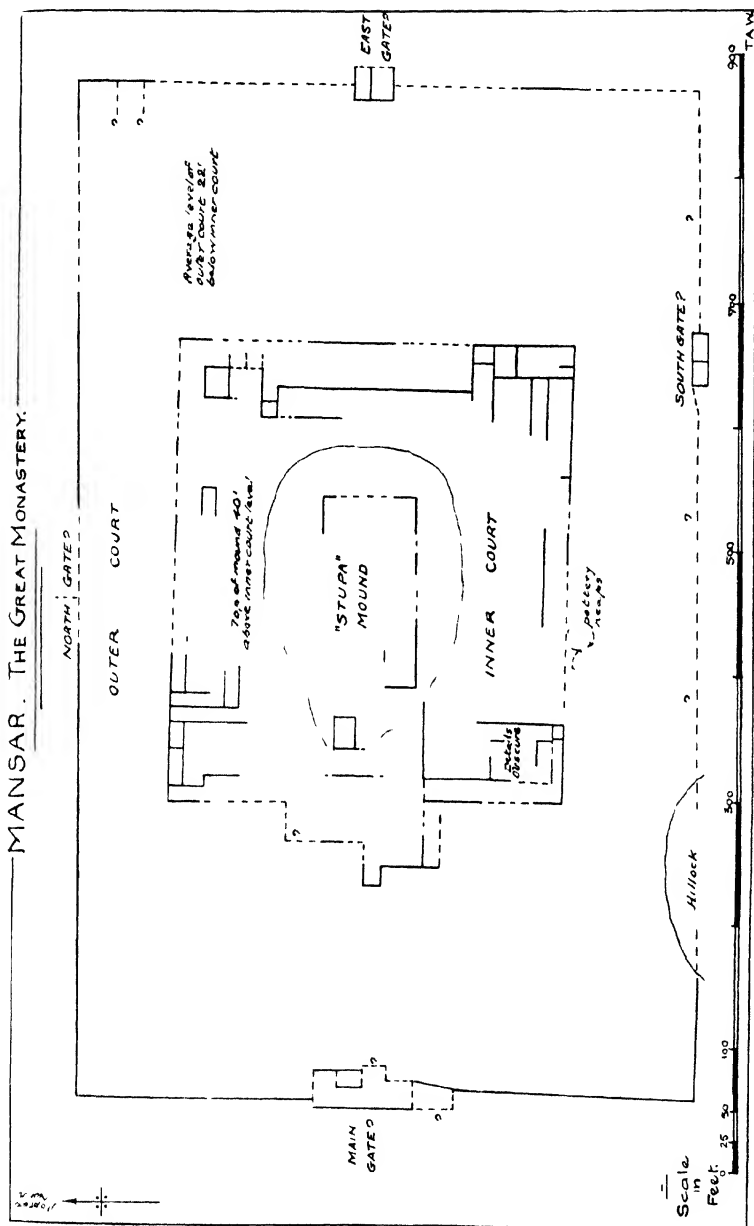
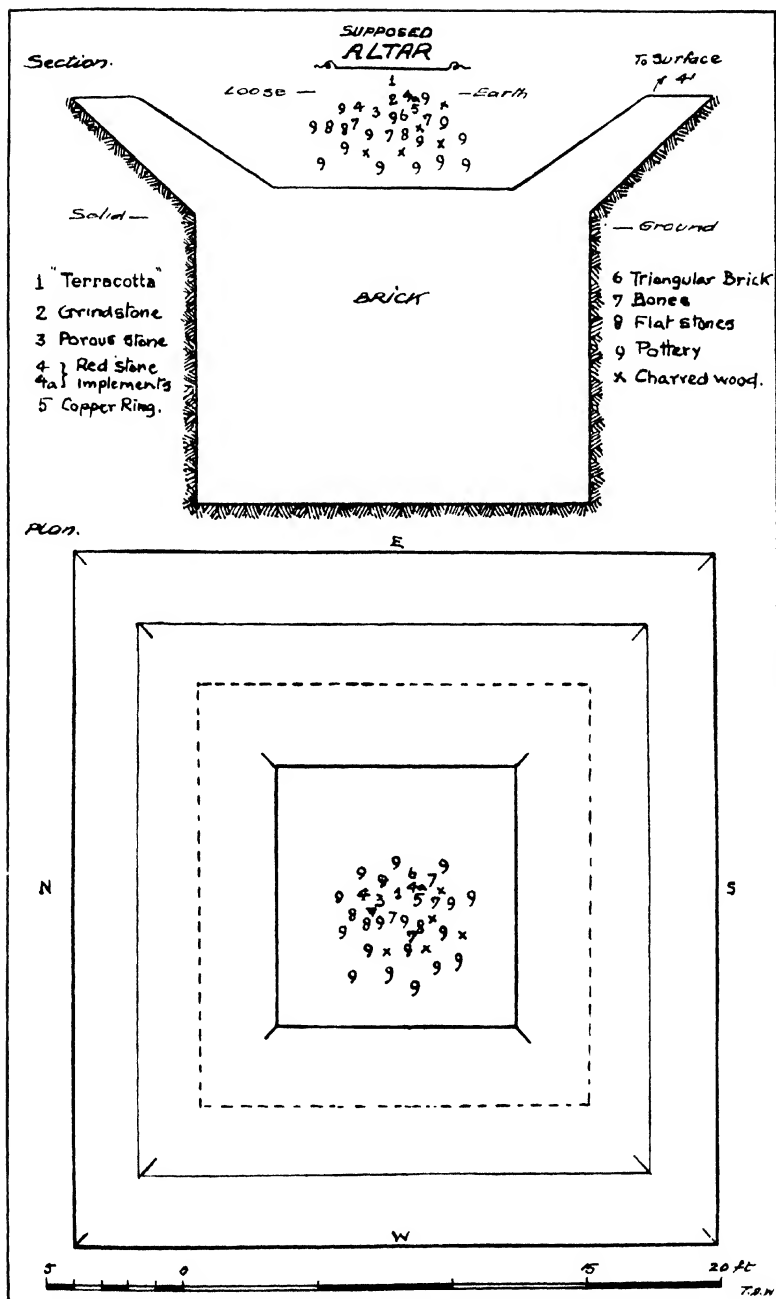
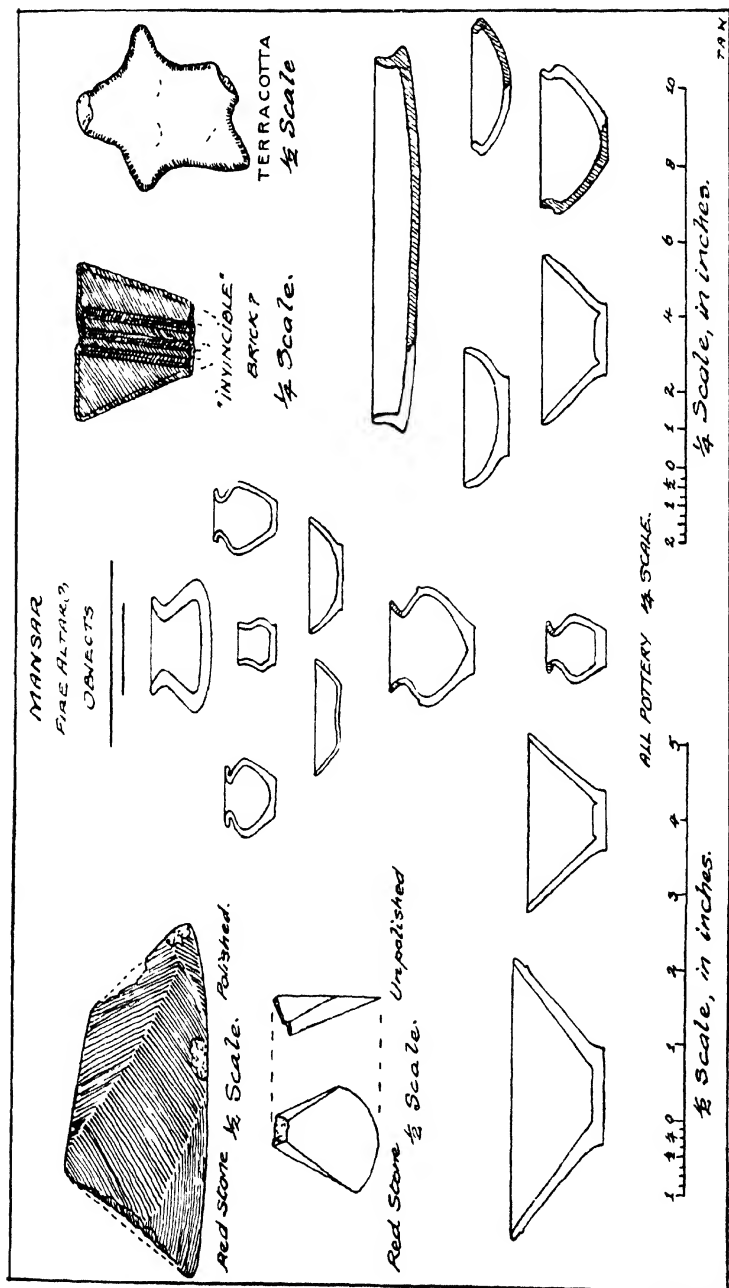


Fig. 2. Nandipur Nandivardhana









Carved stone fragments found at Mansar to the south of the Lake.



FIG. 1. Monastery site from the North-east.



FIG. 2. Central Mound Monastery site from the West



FIG. 3. Stone facing at Tank edge West side of Monastery site.

A few types of Sedentary Games of Lower Bengal.

By JATINDRA MOHAN DATTA.

(Communicated by Dr. S. L. Hora.)

The types of sedentary games described below are played by the local people of the districts of 24-Parganas, Howrah, and Hooghly. There is an erroneous impression that these games are not indigenous but have been imported from up-country. The author (an inhabitant of Panihatī, about 10 miles north of Calcutta on the Ganges) learnt these games about 35 years ago. It has been ascertained from old men of 70 and over that the games were prevalent in their boyhood. The author has noticed them being played by the Bengalees at Asansol, Burdwan, Midnapore, Ranaghat, Santipur, Khulna, and Barisal.

Tant-fant.

The diagram used for the game of *Tant-fant* is shown in figure 1. It is generally drawn on floor with a piece of charcoal or broken brick.

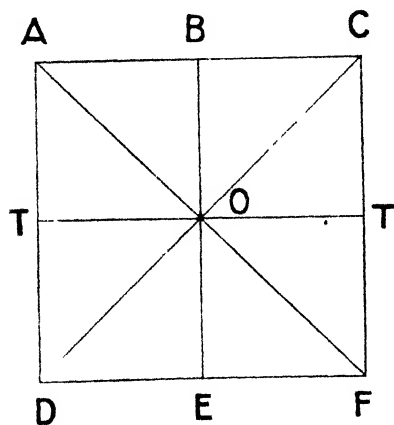


FIG. 1.

Two persons play the game. At the commencement of the game each player places three distinctive pieces on the three cross-points (ABC or DEF) of his side of the square. In the first move, a piece is shifted to the central line TT. The game is won, when all the three pieces belonging to a player lie in a straight line anywhere (horizontally, vertically, or obliquely) with the exception of the starting line.

[B. Das-Gupta has described this type of game from Vikramপুর (*Quart. Journ. Bangiya Sahitya Parishad*, XIV, pp. 242, 243, 1314 B.S.) under the local name of *Tin-guti pait pait*, but unfortunately his description is very meagre. In the game described above no piece of the adversary is to be removed from the board, but in the Vikramপুর game as soon as three pieces are arranged in a straight line, a piece of the adversary is removed from the board. In this way the winner of the game

will be one who removes from the board all the three pieces of his opponent without losing any one of his piece. According to Das-Gupta the popularity of the game is on the wane. *S. L. H.*]

Lau-kata-kati.

The diagram used in playing the game of *Lau-kata-kati* is shown in figure 2. The game is played by two persons with 18 pieces; each player places his nine distinctive pieces on the nine cross-points of his triangle leaving the apex vacant. In the first move, a piece is shifted to the central point O and then the usual rules of draughts are followed, with the exception that only one piece can be captured at a time. One, who captures all the nine pieces of his adversary, is the winner.

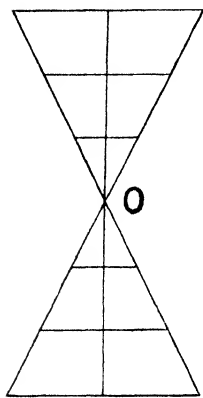


FIG. 2.

[Humphries (*Journ. Proc. Asiat. Soc. Bengal*, II, p. 123, 1906) refers to an identical game played at Bargarh in the United Provinces. Reference may also be made to a similar game played in the Central Provinces (H. C. Das-Gupta, *Journ. Proc. Asiat. Soc. Bengal*, XXII, p. 212, 1926), though the board is somewhat different and 22 ballets are needed to play the game. *S. L. H.*]

Mughal-Pathān.

The diagram used in playing the game of *Mughal-Pathān* (in the vernacular name reference is made to the well-known wars between the Moghuls and the Pathāns in Bengal) is shown in figure 3. Two players are necessary to play the game, and each player has 16 distinctive pieces. At the commencement of the game, each player arranges his pieces in his half of the board and in this way the central line is left vacant. The game is played like draughts and two or more pieces of the opponent can be removed at a time.

In some localities, another horizontal line is drawn in each triangle and then each player has 19 pieces to play with.

[This game has been described by B. Das-Gupta (*Quart. Journ. Bangiya Sahitya Parishad*, XIV, pp. 239, 240, 1314 B.S.) under the title of *Sola-guti Mangal Pata*, in which reference is made to 16 pieces used by each player as well as to the Moghul-Pathān wars in Bengal. The board is used in playing several types of games and reference may here be made to the Bornean game *Rimoe* described by Jacobson (*Tijdsch. Ind. Taal-, Landen Volkenkunde*, LVIII, pp. 8-10, 1919), the *Ahtarāh Gutti* of U.P. described by Humphery (*Journ. Proc. Asiat. Soc.*

Bengal, II, p. 121, 1906), *Atharagutiala teora* of C.P. described by H. C. Das-Gupta (*Journ. Proc. Asiat. Soc. Bengal*, XX, 166, 1924),

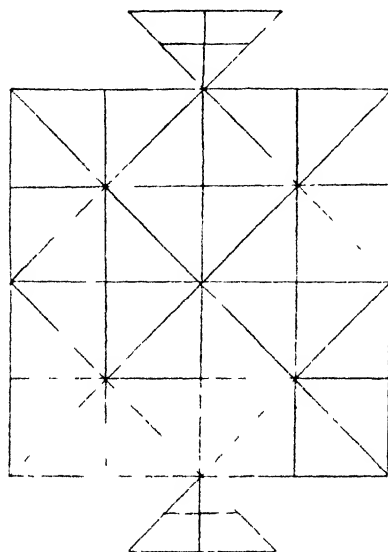


FIG. 3.

Lam Pusri or *Sipahi Kat* of the Teesta Valley (*Journ. Proc. Asiat. Soc. Bengal*, XXIX, p. 10, 1933), etc. etc. S. L. H.]

Bagh-bandi

The diagram used in playing the game of *Bagh-bandi* is shown in figure 4. As its name indicates, it is a kind of tiger-

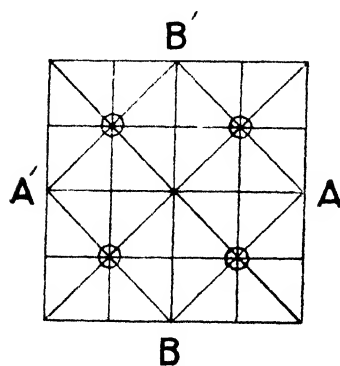


FIG. 4.

play. [The game has already been described by Humphries (*Journ. Proc. Asiat. Soc. Bengal*, II, pp. 123, 124, 1906) under the local name *Bagh Gutti* from the Karwi Subdivision in the United Provinces, and by H. C. Das-Gupta from British Garhwal as *Bāgh-Batti* (*Journ. Proc. Asiat. Soc. Bengal*, XXIII, p. 297, 1927). *Chabbis-guti Bagh-chal* described by B. Das-Gupta from Vikram-pore (*Quart. Journ. Bangiya Sahitya Parishad*, XIV, pp. 240, 241, 1314 B.S.) is a similar game, but is played with 26 instead of 22 pieces. Its popularity is

said to be on the wane. Attention may also be directed to a

Punjab game called *Sher-bakar* (*H. C. Das-Gupta, ibid.*, XXII, p. 145, 1926) played on an identical board but with 19 pieces as 'goats' instead of 20. In playing *Sher-bakar*, 15 pieces are distributed equally in 3 circles, whereas the remaining 4 pieces are placed in the 4th circle at the commencement of the game. *S. L. H.*]

The author has seen the diagram of Bagh-bandī on the lid of an old-fashioned wooden chest, which from the traditions of the family of the owner must be 125 years old

Sadāśiva Worship in Early Bengal : A Study in History, Art and Religion.

By HARIDAS MITRA.

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SUMMARY.

THE ROYAL SEAL OF THE SĒNA KINGS OF BENGAL, AND SADĀŚIVA WORSHIP.

The Seals, in cast metal, attached to copperplates of the Sēna dynasty of Bengal, show in relief a ten-armed and many-faced form—first identified by Prinsep, while editing the Bākhargañja (Idilpur) plate of Keśava Sēna, as a form of Śiva. Specific mention of the seal as the *Sadāśiva Mudrā* in Viśvarūpa Sēna's Madan-pādā Inscription suggested the first clues to the identification of the figure, subsequently, in the now defunct *Āitiḥāsik Citra* (Vol. I), edited by Bābu Akshaya-kumār Maitreya, Rājshāhi.

The exact procedure of issuing deeds of gift :—the practice of fixing seals—fully attested to in the Dharma-śāstras, e.g. *Yājñavalkya-Saṁhitā* and *Mitākṣarā*, and the Nīti-śāstras, e.g. Kauṭilya's *Artha-śāstra*.

Descriptions of Sadāśiva—not found in the *Purāṇas*, commonly, though the name occurs. Sadāśiva—not mentioned by Hēmādri, who wrote between 1260–1309 A.C.

Descriptions met with in the *Tāntrika* Texts—e.g. *Mahā-nirvāṇa Tantraṃ*—and in the *Nibandhas*, e.g. *Śāradātīlakaṃ*.

Of this form of Śiva indicated in Sēna seals, there are three remarkable stone images in the Varendra Research Society, Rajshahi—two with small one-line votive inscriptions. And

these apparently meaningless Epigraphs are nevertheless important as fixing for the present, the upper-limit of Sadāśiva worship. Palæographic considerations must place the earliest specimen, between 950-1050 A.C. and the latest example, in the latter half of the 12th century A.C.

(Varendra Research Society. *Abbreviated: V.R.S.*)

These three specimens in the *V.R.S.* disclose a remarkable family likeness and they also illustrate an interesting phase in the mutual assimilation and approximation of Brahmanism and the Buddhistic faith. All the three specimens present the *Abhaya-mudrā* in the *Vyākhyāna* style, and the *Varada-mudrā* in the *Bhūmisparśa* pose, while the pedestal in each shows the peculiar and non-Brāhmanic sculptural device of an elephant sitting between two lions.

The other two Sadāśiva Images in stone, in the Vaṅgiya Sāhitya Parisad, Calcutta, belong altogether to a new type.

(Vaṅgiya Sāhitya Parisad. *Abbrev.: V.S.P.*)

The three specimens in the *V.R.S.* are characterised by feminine grace, while the two other ones in the *V.S.P.* are marked by masculine vigour and majesty and are also later in age than the former set.

Besides the Ānuliā. of the other Sēna Inscriptions—the Tapandighi seal calls for special notice.

Detailed descriptions of the Sadāśiva seals, and the two groups of Images in stone, viz. the *V.R.S.* set and the *V.S.P.* group.

Comparisons will show that the figures on the seals disagree with the stone-images, as also with descriptions of Sadāśiva found in literary texts—which last, again, are seemingly contradictory with one another. The figures in stone and on the seals are of greater importance than literary texts.


Descriptions of Sadāśiva from all available Sources.

Some of the *Dhyāna-ślokas* not handed down in perfect state of preservation. Different readings and mistakes had already crept in as early as the time of Gadādhara (15th century) the earliest commentator consulted on *Saradā-tilakaṇi*—showing that Sadāśiva worship was falling out of popular favour as early as the 14th-15th centuries.

But the worship of Sadāśiva is coeval with the तन्त्र Tantras and the शैवगमन Śaivāgamas, as Sadāśiva occupies an important position in Tāntrika cosmogony, while according to the latter (Śaivāgamas), He is the Highest and the most Supreme Being—corresponding to Vāsudeva of the Vaiṣṇavāgamas and Parabrahma of the Vēdāntins.

The apparent contradictions, mutually--of the *Dhyānas* and descriptions of Sadāśiva—explicable. Causes of the multiplicity and divergence of conceptions for the same deity—e.g. Sadāśiva.

Propositions deducible from the above considerations :—

- (a) The literary descriptions of Sadāśiva now available might be later in age than the conceptions represented by the stone images.
- (b) The Dhyānas might be earlier.
- (c) The images might be indicative of new concepts about the deity, in vogue at the time.
- (d) The Dhyāna corresponding to the form of Sadāśiva in question may be no longer extant. It is known that mantras for other deities are lost.
- (e) Lastly, the images which are Tāntrika (?) might have been introduced by the Sēnas, who came from the South (or by similar other persons) and might belong to the Kērala  School of Tantras.

The discovery of Sadāśiva Images earlier than the Sēnas must place the date of introduction of the conception from the South, before or about the Pāla period. Sadāśiva worship had already a long history even in the times of Śaṅkarācārya (8th century A.C.) and Lakṣmaṇa Dēśika (10th century A.C.).

It possibly grew to be a regular cult about the Pāla and the Sēna periods. The existent specimens of Sadāśiva agree closely with the description given in the *Garuḍa Purāṇam* and in the South Indian Śaivāgama—*Uttara-kāmikāgama* (not earlier than the 5th-6th centuries A.C.). Authorities are all in agreement that Sadāśiva represents the Ākāśa Tattva and His five faces the five elements.

The necessity of symbolic meanings in explaining the many apparently contradictory elements in deities.

The symbolic significances of Sadāśiva's *Āyudhas*, *Mudrās* etc.

The position of Śaiva worship during the Sēnas. Conclusions.

Probable time and way of introduction of the Śaivāgamic concept into Bengal. Time and extension of Sadāśiva worship.

PART I. EPIGRAPHY AND HISTORY (RELIGIOUS AND
POLITICAL).

(a) *Introduction: History of the Sēnas.*

§ 1. Of the many chiefs and princes who asserted independence or carved out kingdoms, on the eve of the disruption of the mighty Pāla Empire of Bengal, the most important were the Sēnas.

§ 2. The Sēna Kings of Bengal claimed descent from the Lunar Brahma-Ksatriya clan of Karnāta, and as such, were foreign settlers in Bengal. It is, however, unknown when and how they came. The first Sēnas might have come to Bengal as vassals or feudatories of invaders like the (Ālukya Vikramānka-deva Tribhuvanamalla Paramardideva, or the Kaṭacuri Cedi Emperor Karna, or the (Āḷa Rājendra I, or, perhaps, even earlier.

§ 3. Taking advantage of the weakened state of the Pāla Empire, the first Sēnas seem to have established themselves in the comparatively inaccessible and inhospitable hill-tracts (bordering West Bengal) which the Aryans had not adequately penetrated.

Thus securely settled in these strong recesses, the Sēna princes might have gathered strength and gradually spread their arms towards North and East Bengal (ultimately driving the Pāla Kings to Magadha) when they assumed Imperial Titles.

§ 4. The Sēna Kings seem to have possessed more than one provincial capital.

Some of the Sēna Kings were great patrons of letters while all are described as successful warriors. They were also great builders. Some of their temples are known to have been triumphs of architectural skill.

§ 5. The following account of the Sēna family may be gathered from their hitherto discovered epigraphic records¹ :—

¹ For General History of the Sēnas, see :—

(a) Ramaprasad Chanda : গৌড়-রাজমালা । *Gauḍa-rājamālā* (V.R. Soc., Rajshahi), pp. 38–77

(b) R. D. Banerjee : বাঙ্গালার ইতিহাস । প্রথম ভাগ । **History of Bengal**, Vol. I. Chapters X–XII ; Vol II. Chapter I.

(c) N. N. Vasu : বঙ্গের জাতীয় ইতিহাস—রাজবংশ : *The Castes and Sects of Bengal: The Royal Dynasties of Bengal*, Vol. I.

(d) Nanigopal Majumdar : *Inscriptions of Bengal*, Vol III (V.R.S., Rajshahi, 1929).

(e) Hem Chandra Ray : *The Dynastic History of Northern India*, early mediæval period, Vol. I. Calcutta University Press, 1931, pp. 352 ff.

In the family of a prince named Virasēna of the Lunar Kṣatriya dynasty of Kārṇāṭa, were born many illustrious princes—ornamenting the Rādhā country, where they evidently shifted and settled.

In their family was born the heroic Sāmanta Sēna, the crest-gem of Brahma-Kṣatriya clan and the receptacle of many virtues. He undertook conquering expeditions and alone, won back the royal fortune of the Kārṇāṭas from enemies killed in battle. In old age he retired to a hermitage on the banks of the Ganges.

His equally virtuous and illustrious son Hēmanta Sēna was a devout Śaiva. His virtuous wife was Yaśō Dēvi यशोदेवी.

Hēmanta Sēna's son was Vijaya Sēna. He was the first prince of this family to have attained independent sovereignty. Vijaya Sēna is said to have outshone Sāhasāṅka साहसाङ्क by his prowess; he scared away the Lord of the Gaudas, defeated the King of Kāmarūpa and conquered Kaliṅga. He is also said to have defeated and imprisoned Kings Nānyadēva नान्यदेव,¹ Vira Vīra, Rāghava राघव and Vardhana वर्द्धन. But Vijaya Sēna's naval expedition for conquering the western provinces seems to have been unsuccessful. Vijaya Sēna performed numerous Vedic sacrifices. He erected a magnificent temple dedicated to Pradyumnēśvara प्रद्युम्नेश्वर and dug a spacious tank in front of it.²

A copperplate grant of Vijaya Sēna in the 62nd year of his reign ascribes to him a full title, namely—

(महाराजाधिपराज) समस्तसुप्रशस्युपेत अगिराजवृषभशङ्कर-
गौडेश्वर श्रीमदिजय सेनदेवः ।

His principal queen was the Śūra शूर princess Vilāsa Dēvi विलासदेवी.

Her son was Ballāla Sēna. He possessed great learning and was a heroic and virtuous man. The authorship of two literary works, viz. the *Dānasāgara* and the *Adbhutasāgara*, the first—a compilation (Nibandha) on Smṛiti, and the second—another on Jyōtiṣa (Divination), is ascribed to him. His full title was—

(परमेश्वर-परम-साहेश्वर-पद्मभट्टारक-महाराजाधिराज)

¹ King of Mithilā

² Vijaya Sēna's Pradyumnēśvara Temple Prasasti प्रशस्ति composed by Umāpatidhara, which is the oldest record hitherto discovered of the Sēna dynasty, enabled to locate exactly the site of the Temple at Village Dōpādā, Police Station Gōdāgādi, District Rājshāhi. The partial excavation (by V.R. Soc., Rājshahi) of the spacious tank which is still called Padum-Shahar, led, in 1919, to the discovery of many stone-images as also of other relics in terra-cotta and stone.

समस्त-सुप्रशस्युपेत अरिराज निःशङ्क-शङ्कर गौडेश्वर श्रीमद्वल्लभ-
सेनदेवः ।

Ballāla Sēna's son was the famous Lakṣmaṇa Sēna whose mother Rāmā Dēvī रामदेवी was a Čālukya princess.

Lakṣmaṇa Sēna erected pillars of victory at Purī, Kāśī and Prayāga, at which places he also performed sacrifices. In his youth Lakṣmaṇa Sēna sported with Kaliṅga कलिङ्ग damsels. Kāmarūpa was conquered by him. One of Lakṣmaṇa Sēna's queens was Tāndrā Dēvī तान्द्रा-देवी or Tādā Dēvī ताडा-देवी.

As noble and pious king, Lakṣmaṇa Sēna was a great patron of letters and gathered round him, poets like Jayadēva and Dhōyī, and scholars like Halāyudha. Verses of his own composition as also of his contemporary poets are given in the anthology Saduktikarnāṃṛitaṃ सदुक्तिकर्णामृतम्¹ by Śrīdharadāsa श्रीधरदास, son of Vatudāsa वटुदास, one of Lakṣmaṇa Sēna's courtiers. Lakṣmaṇa Sēna's full title was —

(परमेश्वर-परमवैष्णव-परमनारसिंह-परमभट्टारक-महाराजाधि-
राज) समस्तसुप्रशस्युपेत अरिराजसूदन शङ्करगौडेश्वर श्रीमद्वल्लभ
सेनदेवः ।

Lakṣmaṇa's name is connected with an era called Lakṣmaṇa Saṃvat (La. Saṃ.) which is still current in Mithilā. The initial date of this era has not, however, been exactly determined as yet. According to the Muhammadan historians, Muhammad-i-Bakhtyar captured by surprise with a mere handful of men the Sēna capital said to have been situated at a place called Nūdia, which however cannot now be exactly located. After Lakṣmaṇa the Sēna kingdom gradually diminished in extent and eventually vanished from Bengal.

§ 6. Three sons of Lakṣmaṇa are known, all of whom succeeded their father one after another. They ruled in East Bengal as independent sovereigns. The eldest was Mādhava माधव. The next two sons of Lakṣmaṇa—Viśvarūpa Sēna विश्वरूप सेन and Kēśava Sēna केशव सेन are said to have been brave

¹ (a) R. Pischel: 'Die Hofdichter des Lakṣmaṇa Sēna' 'On the Court-poets of L.' - A.G.G.N., 39, 1893; and M. Chakravarti: J.P.A.S.B. (N.S.), 2, 1906, pp. 157 ff.; Dr. M. Winternitz: *Geschichte der indischen Literatur*, Vol. III, p. 54.

(b) M. Winternitz: *Geschichte*, Vol. III, pp. 156 ff.
Saduktikarnāṃṛitaṃ—compiled in 1205 Both the father and the son were in L.'s services. The anthology contains chiefly verses of Bengal poets such as Dhōyī and Jayadeva. 446 poets are quoted altogether. Amongst them are Gaṅgādhara who is known by an inscription of 1137 A.C. and five other poets who are related to him, all of whom lived between 1050 and 1150 A.C.

and pious kings who defeated the Yavana or Muhammadan hordes in battle. Their full titles were—

समस्तसुप्रशस्युपेत अश्वपति गजपति नरपति राजत्रया-धिपति
सेनकुलकमल-विकास-भास्कर सोमवंशप्रदीप प्रतिपन्नकर्ण सत्यव्रतगाङ्गेय
शरणागतवत्सपञ्जर परमेश्वर परमभट्टारक परमसौर महाराजाधिराज
अरिराज असह्यशङ्कर गौडेश्वर श्रीमत् केशवसेनदेवपादाः विजयिनः ॥

And समस्तसुप्रशस्युपेत वृषभाङ्कशङ्कर
विश्वरूप सेन ॥

§ 7. The name of a Buddhist King Madhu Sēna, who was still ruling in A.C. 1289, with the Imperial title, is disclosed in a Buddhist MS. of *Pañca-rakṣā* discovered from Nepal. The final colophon¹ runs as—

“परमेश्वर-परमसौगत-परमराजाधिराज-श्रीमद्गौडेश्वर-मधु सेन-
देवकानां प्रवर्द्धमान विजयराज्ये यत्राङ्केनापि शकनरपतेः शकाब्दाः १२११
भाद्र दौ २ । ”²

§ 8. Of the Epigraphic records of the Sēna family, hitherto discovered, the earliest is Vijaya Sēna's Pradyumneśvara प्रद्युम्नेश्वर Temple Prasasti, composed by Umāpatidhara.³ A Copperplate Grant⁴ issued in his 62 regnal year⁵ has also been discovered.

It was a deed of gift for a religious ceremony performed by his Queen Vilāsa Dēvī. The land was in Khādī Viṣaya खाडि विषय under Paundravardhana-bhukti पौण्ड्रवर्द्धनभुक्ति conferred upon one Udayakara-sarman उदयकरशर्मण of Vātsya gōtra and a student of the Āsvalāyana-śākhā of the Ṛigvēda as *Dakṣiṇā* दक्षिणा of the Kanaka-tulā-puruṣa Mahādāna sacrifice, performed by the Queen.

¹ Illustrated in *Vaṅgīya Sāhitya Pariṣat Patrikā* (V.S.P.P.), Vol. 27, No. 1, plate 18.

² The ruling families of the Punjab Hill States Puncā, Sukēt, Mandī, Jungā, and Kasmīr claim their descents from scions of the Sēna dynasty of Bengal, who took refuge in the Punjab after the Muhammadan occupation of Bengal. These traditions found in their dynastic chronicles are, however, not yet historically proved.

³ *E.I.*, Vol. I.

⁴ The record is noticed in R. D. Banerjee's *History of Bengal* (in Bengali), Vol. I, pp. 291-2. Since the above was written, it has been edited by Mr. Banerjee in *E.I.*, Vol. XV, Part VI.

⁵ Wrongly read as (31) thirty-first regnal year by R. D. Banerjee [if the reading (62) suggested first by Nalinikānta Bhaṭṭaśāli (?) be correct].

§ 9. Only one inscribed record of Ballāla Sēna's reign has been hitherto discovered. This is the copperplate inscription discovered at Siṭāhāti—Naihāti villages, district Burdwan, Katwa Subdivision, Bengal. It records the gift by Ballāla Sēna of a village in Uttara-rādhā-Maṇḍala उत्तरরাদামণ্ডল under Vardhamāna-bhukti to one, Śrīśrīśrī Vāsudēva Śarman of the Bhāradvāja gotra, follower of the Kauthuma School of the Sāma Veda, as the *Dakṣiṇā* of Hēmāśva Mahādāna হেমামহাদান ceremony performed by the Queen-mother Vilāsa Dēvi on the occasion of a solar eclipse on the 16th day of Vaisākha, in the 11th regnal year.¹

§ 10. No less than six copperplate inscriptions of Lakṣmaṇa Sēna's reign have been hitherto discovered.

(i) The Tapandighi (district Dinājpur) plate of the third regnal year, Bhādra 3, भाद्र ३, records the gift of Villahisti বিলহিষ্টি village in Varēndra-maṇḍala under the Paundra-varḍhana-bhukti to Īśvara-dēva-Śarman of Bhāradvāja gōtra and follower of the Kauthuma School of the Sāma Veda, in honour of the adored Lord Nārāyaṇa as the Dakṣiṇā of Hēmāśvaratha-dāna. The record was issued from the victorious camp situated at Śrī-Vikramapura.²

(ii) The Anulā (district Nadiā) plate, issued from the victorious camp situated at Śrī-Vikramapura, also of the third regnal year Bhādra 9, भाद्र ९, records the gift of Vyāghrataṭi ব্যাগ্রনটী village under the Paundra-varḍhana-bhukti to Raghu-dēva-Śarman, of the Kauśika gōtra and a student of the Kāṇva School of the Yajurveda.³

(iii) The recently discovered copperplate⁴ from Govindapur (district 24-Pargannas, near Bāruipur)—also dated in the third regnal year (without mention of the exact day) and issued from the victorious camp situated at Śrī-Vikramapura, records the gift by Lakṣmaṇa Sēna of a certain measure of land in Śrī-Vardhamāna-bhukti to Upādhyāya Śrī-Vyāsadeva-Śarman of the Vātsya gōtra and a follower of the Kauthuma School of the Sāma Veda, on the auspicious occasion of the Coronation, in honour of the adored Lord Nārāyaṇa, for the increase of the merit and the fame of the King's parents and person.

(iv) The Sundarbans (Jay-nagar, district 24-Pargannas) plate of Lakṣmaṇa Sēna is no longer traceable. It recorded

¹ First edited by Tārak-candra Rāy—*Vanṣīya Sāhitya Parisat Patrikā*, (V.S.P.P.), 1317 (B.S.). The latest edition of the inscription is by R. D. Banerjee in *E.I.*, Vol. XIV.

² (a) *J.A.S.B.*, Vol. XLIV, 1875, Part I.

(b) *V.S.P.P.*, Vol. XVII.

³ (a) First edited by Bābu Akshaya Kumār Maitrēya, in the now defunct Bengali Magazine *Ātikhāsik Citra*, Vol. I, 1st Series.

(b) *J.A.S.B.*, 1900, Part I.

⁴ Amūlyacaran Vidyābhushan—লক্ষণসেনের নবাবিকৃত তাম্রশাসন (ভারতবর্ষ, কাল্কিন, ১৩৩০), *Bhāratamaraṇa—Phālguna*, 1332 (B.S.).

the gift of a certain measure of land in Khādī-maṇḍala খাড়ী-মণ্ডল under Paundra-varḍhana-bhukti to Śrī-Kṛṣṇadharadēva-Sarman সৌন্দর্যধর-দেবশর্মা, student of the Āśvalāyana-sākhā of the Rīgvēda, in honour of the adored Lord Nārāyaṇa in the third (!) regnal year, Māgha 10 (?).¹

(v) The Mādhāi-nagar (district Pānā) plate records the gift of the Dāpaṇiyā pāṭaka village in Paundra-varḍhana-bhukti under Varēndra-maṇḍala to Gōvinda-dēva-Sarman of the Kausika gōtra and a student of the Paippalāda School of the Atharva Veda, as the Dakṣiṇā of the Hemāśva-ratha-dāna ceremony. The date and the year of issue of the record are worn away.²

(vi) The most recently discovered copperplate³ of Lakṣmaṇa Sēna from Śaktipur (district Murshidabad) is dated in the sixth regnal year Śrāvana 7, শ্রাবণ ৭. It was issued from the victorious camp situated in Śrī-Vikramapura, and records the gift of some six pāṭakas of land, consisting of Rāghavahatta, etc. under Śrī Madhugiri Maṇḍala in the vicinity of Kumbhīnagara, at the South of the Kaṅkagrāma-bhukti, to Ācārya Śrī-Kuvera-deva-Sarman, a follower of the Kauthuma-sākhā of the Sāma Veda. The pious gift was made on the occasion of a solar eclipse in honour of the adored Lord Nārāyaṇa and for advancement of the merit and the fame of the King's parents and person.

The six pāṭakas of land, Rāghavahatta, etc. were given in exchange for a plot called Chatrapāṭaka. The latter was held by Gayāla Brahmana Haridāsa as a gift from Śrī Ballāla Sēna. The Minister of peace and war Sāndhi-vigrahika, Tripurāri Nāha was the Dūtaka of this particular deed of Lakṣmaṇa Sēna, in whose other records the Dūtaka is Nārāyaṇa Datta.

The only notice available of another comparatively little known copperplate of Lakṣmaṇa Sēna—the lost Bhowal (Bhāoāl) inscription, has recently been brought to light. It was probably granted in the 37th (or, misreading for 27th ?) regnal year and the contents of the plate were similar to those of the

¹ (a) Partly deciphered, by the late Pandit Rāmgati Nyayaratna, at the end of his book on the History of Bengali Literature (বাঙ্গালীভাষা ও বাঙ্গালী সাহিত্য বিষয়ক প্রস্তাব—চুচুড়া).

(b) Babu Mahim-candra Ray : *Gauḍe Brāhmaṇa*, Calcutta, 1886, gives a fuller but inaccurate version.

² (a) *Antihāsika Citra*, Vol. I, 1st Series.

(b) *J.P.A.S.B.* (New Series), Vol. V.

³ First edited by Ramescandra Basu—*Lakṣmaṇa Sēner Navāmskṛita Tāmrasūtra*, V.S.P.P., Vol. XXXVII; Readings of the topographical portion and of the year and date corrected by Nalinikanta Bhattachārya—*Lakṣmaṇa Sēner Navāmskṛita Śaktipur-śāsan O Prācīna Vānger Bhauḡolika-vibhāga*, বঙ্গীয় সাহিত্য পরিষৎ পত্রিকা ৩৯ ভাগ ১৩৩১। V.S.P.P., Vol. XXXIX.

Mādhāi-nagar grant, which unmistakably belonged to later years, in the reign of Lakṣmana Sēna.¹

A stone-image of Candī (which may be identified as of the Mahālakṣmī form) now at Dāl bāzār, Dacca, was installed in Lakṣmana Sēna's third regnal year by one Nārāyaṇa, probably a royal officer in Vaṅga.²

§ 11. Only one copperplate inscription of Viśvarūpa Sēna was hitherto known. But, recently, another partly mutilated copperplate record of the same king has been found from Eastern Bengal.³

It recorded donations by the king in perpetuity, of pieces of land, containing gardens and plantations and situated in different parts of Eastern Bengal, which were either purchased or got as gifts from princes and ministers by the donee himself, viz. Āvallika Paṇḍita Halāyudha of the Vātsya gōtra and a student of a portion of the Kāṇva School of the Yajurveda. Two princes of the Sēna dynasty are mentioned in the donation portion of the inscription. One is Sadā Sēna and the other Puruṣottama Sēna. Their relationship with Viśvarūpa is not given, but as they are called Kumāras, they might be his sons.

The Madanpādā (Dt. Faridpur) Copperplate⁴ Inscription of Viśvarūpa Sēna records the gift of some land in Paundra-varḍhana-bhukti under Vikramapura-bhāga of Vaṅga to Viśvarūpa-dēva Śarmaṇ, a reciter of the Vēdas, in the fourteenth regnal year, Āsvina 1, আশ্বিন ১ . . .

§ 12. The Idilpur (Dt. Bākhargañja) Copperplate,⁵ no longer traceable—the only one inscription of Kēśava Sēna recorded the gift of Tālapaḍā-pātaka তালপড়াপাটক village, in Paundra-varḍhana-bhukti under Vikramapura-bhāga of Vaṅga to Sri Śvara-dēva Śarmaṇ, a reciter of the Vēdas, in the third regnal year, Jyaisṭha.⁶

1 (a) Nalinikānta Bhaṭṭaśālī: 'The lost Bhowal copperplate of Lakṣmana Sēna Deva of Bengal' *I.H.Q.*, Vol. III, No. 1, March, 1927.

(b) For the Bengali Version of N. B.'s article, see লক্ষ্মণসেনের অবনালপটু ভাণ্ডার তাম্রশাসন (মানসী ও মন্ত্রবাণী। ১৩ বর্ষ, ২য় ২৬।) পঞ্চম সংখ্যা, পৃষ্ঠা ১৩২৮।

2 *J.P.A.S.B.*, New Series, Vol. IX, p. 290, pl. XXXI-XXXIV.

3 Haraprasād Śāstri: 'A Copper-plate Grant of Viśvarūpa Sēna of Bengal', *I.H.Q.*, Vol. II, No. 1, March 1926. A portion (of the Copperplate) with writings on both sides has been cut away and melted. Probably the plate was later in date than the other Madanpādā Inscription, as the descriptive or panegyric *śloka*s of the first, do not all occur in the latter, which is less elaborate.

4 *J.A.S.B.*, Vol. LXV (1896), Part I, p. 11.

5 *J.A.S.B.*, Vol. VII (1838), date lost.

6 'The Sēnas, who followed the Pālas in Magadha, have left an inscription at the great temple of Jageśvar beyond Almora, which though very imperfect allows the name Mādhava Sēna to be read.' It records the gift of some land by Mādhava Sēna on that institution.—Atkinson: *Notes on the History of the Himalaya of the N.W.P. of India*, Chapter III, p. 50, and Chapter IV, p. 15.

(b) *The Royal Seal of the Sēna Kings of Bengal,
and Sadāśiva Worship.*

While editing, for the first time, in 1838, the Bākhargañja (Idilpur) copper-plate grant inscription of Kēśava Sēna, Prinsep called attention to the ten-handed, many-faced form (in relief) in the seal—‘an elaborately executed figure of Siva, cast in copper, of great delicacy and taste’.¹ The seal is a circular disc with beaded rim and closely rivetted to the top of the grant. See Plate 13, Fig. 1.

The established procedure of issuing deeds of gift required the Indian kings to authenticate the documents by attaching their respective dynastic लाञ्छन *Lāñchana*-s or crests. This practice is fully attested to by the धर्म *Dharma*.²

¹ *J.A.S.B.* (1838), Vol. VII.

² याज्ञवल्क्यः—आचाराध्यायः *Yājñavalkya Acūrādhyāya. Rājadharmaprakaraṇam* and Vijñānēśvara's commentary. *Ślōkas*, 318-20;

दत्त्वा भूमि निबन्धं वा कृत्वा लेख्यन्तु कारयेत् ।

आगामिभद्रपतिपरिज्ञानाय पार्थिवः ॥ ३१८ ॥

पटं वा ताक्षपट्टे वा स-मुद्रोपरिचिह्नितं ।

अभिलिख्यात्मानो वंशानात्मानञ्च सङ्गीपति ॥ ३१९ ॥

प्रतिग्रहपरिमाणं दानच्छेदोपवर्णनं

खड्गस्तकालसम्पन्नं शासनं कारयेत् स्थिरम् ॥ ३२० ॥

While commenting upon these Texts, Vijñānēśvara gives, by the way, the exact procedure of issuing deeds of gift in his time.

कार्पासिके पटे, ताक्षपट्टे फलके वा आत्मानो वंशान्, प्रपितामह-पितामह-पितृन्, बडवचनस्यार्थवत्त्वाय वंशवैर्य्यश्रुतादिगुणोपवर्णनपूर्वकं, अभिलेख्यात्मानं, च शब्दात् प्रतिग्रहोपवर्णनं प्रतिग्रहपरिमाणं दानच्छेदोपवर्णनं चाभिलेख्य. प्रतिग्रहोपवर्णनं इति प्रतिग्रहो-निबन्धः, तस्य रूपकादिपरिमाणं, दौयते इति दानं चेत्त्रादि, तस्य ह्रदः, कियते अनेनेति ह्रदः; नद्यावाटौ निवर्त्तनं तत्परिमाणञ्च तस्योपवर्णनं; अमुकनद्या दक्षिणतोऽयं ग्रामः चेत्त्रं वा, पूर्वतोऽमुकग्रामस्यैतावन्निवर्त्तनं इत्यादि निवर्त्तन-परिमाणः च लेख्यं; एवं आवाटस्य नदीनगरवर्त्तादेः सञ्चारित्वेन भूमेर्न्यूनाधिक-भावसम्भवात् तन्निष्ठार्थः; खड्गस्तेन खड्गस्तलिखितेन, मतं मे अमुकनाम्नः अमुकपुत्रस्य यदत्रोपरि-लिखितमित्यनेन सम्पन्नं युक्तं; कालेन च द्विविधेन शक्यतात्तौतरूपेण संवत्सररूपेण च कालेन, चन्द्रसूर्योपरागादिना सम्पन्नं, खमुद्रया गण्ड-वाराह-रूपयोपरि-बहि-चिह्नितं अङ्कितं; स्थिरं दृढं, शासनं, शिष्यन्तो भविष्यन्तो वृत्ततयः अनेन; दाना-च्छेदोपवर्णनमिति, शासनं कारयेत् सङ्गीपति-र्न भोगपतिः सन्निविष्टकारिणा न येन केनचित् ।

and नीति Nīti¹-शास्त्र Śāstras.

The seal in these inscriptions is called a *Mudrā* which in this connection has to be distinguished from its current use to designate a coin. Etymologically, it means, according to the *Trikāṇḍaśeṣa*, प्रत्ययकारिणो 'that which gives assurance of authenticity'.

The use of seals has been known in India from early times, as may be seen in the clay seals discovered in many places.²

With King's officials, churches, as well as private individuals it usually took the form of a regular seal, and also of signet rings³; and an apt illustration is supplied by the Skt. drama *Mudrārākṣasam*. The royal grants of the Gupta Emperors as well as their vassals and of all subsequent dynasties, ruling even over small provinces, disclose the use of the *Mudrā* or the seal. It would appear that the royal seal used to remain in the

‘सन्धिविग्रहकारी तु भवेत् यस्य लेखकः ।

स्वयं राजा समादिष्टः स लिखेत् राजशासनम् ॥’

इति स्मरणात् । दानमात्रेणैव दानफलं मिदं शासनकारणं (करणं !) भोगाभि-
ष्टान्ना फलातिशयात् ।

¹ *Kautilīyam Arthaśāstram* (Mysore Sanskrit Ser.) and English Translation of Ditto. (both by R. Shama Śastri) २४ अधिकरणे २८ प्रकरणं शासनाधिकारः । अध्यक्षप्रचारे शासनाधिकारः The practice of forming Royal Writs.

दशमोऽध्यायः आदित एकविंशः—

“शासने शासनमित्याचक्षते । शासनप्रधाना हि राजानः तन्मूलत्वात् सन्धिविग्रहयोः । ८०. ५

तस्मादामात्यसम्पदीपितः सर्वसमयविदाश्च ग्रन्थस्त्वावंचरो लेखवाचनसमर्थो लेखकं स्यात् । मोक्ष्यग्रमना राजस्सुन्दरेण युत्वा निश्चितार्थं लेखं विदध्यात् । देशैश्च वंशनामधेयोपचारमौख्यस्य, देशनामधेयोपचारमनौख्यस्य ।

८१. २ जाति कुलं स्थानवयश्च्युतानि

कर्मादिशीलान्यथ देशकालौ ।

योनानुबन्धं च समौख्य कार्ये

लेखं विदध्यात्पुरुषानुरूपम् ॥

प्रज्ञापनाज्ञापनिदानलेखाः

तथा परीक्षारनिन्दितलेखौ ।

प्राष्टतिकश्च प्रतिलेख एव

सर्वत्रगद्येति हि शासनानि ॥

² *A.S.I.R.*, 1911-12. Excavations at Bhita. Seals and sealings; pp. 44-61. *A.S.I.R.*, 1903-4. Excavations at Basārīh.

³ *Imp. Gaz. Indian Empire*, Vol. VI, pp. 29-34.

careful custody of a keeper, a responsible officer under the designation of *Mahāmudrādhyakṣa*.¹

As for the copperplate grants of the Sēna Kings, the seal on the Anulīā (Dt Nadiā, Bengal) Plate discloses a many-faced and ten-armed male deity seated in the *Mahāpadmāsana* **মহাপদ্মাসন** pose.

The seal on the Anulīā Plate is not named, but specific mention of a similar seal as *Sadāśiva Mudrā* **সদাশিবমুদ্রা** in the Idilpur Copperplate of Kēśava Sēna, suggested the first clue to identification.²

Other Sēna Inscription-seals.

The seal in the Sītāhātī-Naihātī Plate of Ballāla Sēna contains a similar ten-armed sealed image of Śiva.³ A similar seal was noticed on the lost (24-Parganas) Jayanagar Plate of Lakṣmaṇa Sēna.⁴ Such a seal also exists on the Mādhāi-nagar Plate.⁵

But the seal on the Tapandighi Plate of Lakṣmaṇa Sēna shows the same figure in a slightly different style.⁶ Similar seal on the Bākhargañja (Idilpur) grant of Kēśava Sēna is expressly called the *Sadāśiva Mudrā*.⁷

The Madanpādā Copper-plate Inscription of Viśvarūpa Sēna says that the seal represents (a seal of) the *Sadāśiva Mudrā* 'Sadāśiva-mudrayā mudrayitvā **সদাশিব-মুদ্রয়া মুদ্রয়িত্বা**'.⁸

The image of Sadāśiva thus found on the royal seal of Sēna Kings of Bengal is not an imaginary one, invented for the purpose of the seal. There are both literary and monumental proofs about the worship of a deity of this name, which obviously belongs to a variety of the Śivaite cult.

The royal seals of the Buddhist Kings of the Pāla and Candra Dynasties of Bengal may rightly suggest that the image in the seal of the Sēna Kings may not be absolutely unconnected with their religious faith.

Of this identical form of Śiva there are three remarkable stone images (two with small one-line votive inscriptions) in the museum of the Varendra Research Society, Rājshāhi. Two other stone-images of this type have also been collected by the Vaṅgīya Sāhitya Pariṣad, Calcutta.

¹ Cf. *Mahāmudrādhyakṣa* (to which the term must correspond) of Lakṣmaṇa Sēna's copperplates.

² ঐতিহাসিক চিত্র (১ম পর্বাংশ) ১ম বর্ষ, Aitihāsik Citra (1st Series), Part I.

³ Illustrated:—*V.S.P.P.*, বঙ্গীয় সাহিত্য পরিষৎ পত্রিকা ১৭শ ভাগ;—*E.I.*, Vol. XIV. No. 10.

⁴ Vide **রামগতি শ্রায়দত্ত—বান্ধালা ভাঙ্গা ও বান্ধালা সাহিত্য বিষয়ক প্রস্তাব** (চুচুড়া)।

⁵ *J.P.A.S.B.* (N.S.), Vol. V.

⁶ Illustrated in *E.I.*, Vol. XII (1913-14), Plate 3.

⁷ *J.P.A.S.B.* (N.S.), Vol. X, pp. 99, 104.

⁸ *J.A.S.B.*, 1896, Part I, p. 11.

From a consideration of the localities from which these stone images were collected, it would clearly appear that an actual worship of Śiva in this particular form prevailed in Bengal.

Palæographic considerations may be of some help in determining the approximate period of the two inscribed Sadāśiva images.¹

The Epigraph on the pedestal of the oldest one of them V.R.S. No. $\frac{C(b)3}{160}$ consists of one line only, which, though not clear, obviously indicates the name of the Donor.²

It is undoubtedly near in age to the Dinājpur Pillar Inscription (of 966 A.C.) of the Kāmboja कम्बोज King. For the letters, 'ka क', 'ja ज', 'na न', 'ma म', 'va व' in the Epigraph are similar to the slightly more developed forms, in the Dinājpur, and in the Kṛṣṇadvārikā Temple Inscription of Nayapāla at Gaya. On the other hand the epigraphic alphabet of the inscription is more developed than the Pehoa Script (about 900 A.C.). (cf. the Pehoa 'न na' and 'भ bha'. Therefore the very probable date of the Epigraph is about 950-1050 A.C.



(Ink Impression of the Epigraph.)

The Inscription on the Pedestal of another Image [No. $\frac{C(b)1}{235}$] is a small votive inscription consisting of one line. This also seems to contain the name of the Donor, which however is peculiar and unintelligible. It would be useless to reconstruct the name, into Sanskrit as it might be of Dēśī or even non-Aryan origin, or it might be hopelessly corrupt beyond

¹ The V.R.S., Museum No. $\frac{C(b)3}{160}$ and No. $\frac{C(b)1}{235}$.

² Inscription:—

Yajamāna-Valī ka[bh,n ?]-jyāvuskri[bh,n ?]yiyākah ||

यजमानवलीक[भ, *न ?-] जयवृक्षौ[भ, *न ?] यावत् ॥

N. Cf. the 'na न' and 'bh भ' in the Pehoa Prāśasti of the time of Mahendra Pāla of Kanauj. It is not certain, whether the eighth and the eleventh akṣara within brackets, is 'bha' or 'na'.

restoration.¹ The script used, is intermediate between (Vijaya Sēna's) Dēopādā and (Gopala III's) Māndā Inscriptions, on the one side, and (Aśoka Calla's) Buddhagayā Inscription (1170 A.C.), on the other.

Therefore the Epigraph may be safely placed in the latter half of the 12th c.. A.C.



(Ink Impression of the Epigraph.)

Chronologically the time indicated by these three specimens of Sadāśiva in the V.R.S. synchronizes, also with a troublous period of Bengal History. Repeated attacks by rival kings or military adventurers from all sides and irruption of Mongol hordes from the North, coupled with the weakness of the ruling princes, hastened the downfall of the mighty Pāla empire. The Sēnas also were similar military adventurers from Southern India and they gradually established themselves in Bengal.

All their copper-plates (some of which are no longer traceable) most probably had the Sadāśiva Seal.

The seal on the Ānuliā plate of Lakṣmaṇa Sēna shows a seated figure with 10 hands on a lotus throne. Three of the faces of the figure are noticeable and they are crowned. See Plate 14, Fig. 1.

R1—presents *Abhayamudrā* in *Vyākhyāna* style.

R2—*Danda* (*Śakti*!).

R3—*Śūla*.

R4—*Vajra* (or *Khaṭvāṅga*?).

R5—*Varadamudrā* in *Bhūmisparśa* style.

L1—indistinct (had *Akṣasūtra* ?); held below R1.

L2—Lotus (*Utpala*?).

L3—*Damaru*.

L4—*Sarpa*.

L5—indistinct; (*Vijapūra*?).

Of the seals on other Sēna plates the one on the Tapaṇ-dighi plate, in the Vaṅgiya Sāhitya Pariṣat, Calcutta, calls for special notice—not only on account of its better state of

¹ Inscription :—

Dānapati taṃvāmamaṇa दानपति तंवामंण.

preservation but because the front and the only visible face is peculiar. The figure is ten-armed, seated on lotus throne. The front and the only visible face has round eyes and is furious-looking with dangling locks of clotted hair and snake garland. This is very probably the Aghōra face of Śiva. See Plate 13, Fig. 2.

R1—*Abhaya mudrā*.

R2—*Vajra*.

R3—something with a point; (*Aṅkuśa* ?) *Daṇḍa*.

R4—*Damaru*.

R5—*Varada mudrā*.

L1—indistinct; (*Akṣasūtra* ?).

L2—Lotus.

L3—*Śūla*.

L4—*Sarpa*.

L5—indistinct; (*Vīṇapūra* ?).

PART II. PSYCHOLOGY AND RITUAL.

There are forms of Śiva (belonging to the Tāntrika and also to the Paurāṇika forms of worship) both terrible and benign, some being only partial manifestations (चंशवतार) of the deity (e.g. Virabhadra वीरभद्र).

No form of Śiva, called Sadāśiva, is mentioned by Hemādri¹ who has dealt at length with the Paurāṇik conceptions of Deities.² But Sadāśiva is not totally unknown to the Purāṇas.³

Descriptions of Sadāśiva are found in the Tāntrika निबन्ध Nibandha-s and Texts. Of these, the conception of the form, expressly called Sadāśiva⁴ is partly in agreement with the figure on the seals. But one other Sadāśiva-dhyāna सदाशिवध्यान⁵ is totally different and that about Sadāśiva (unified with Dēvī) गिरिजाभिन्न-देह सदाशिव⁶ of slightly different form. To the mantra मन्त्र called प्रासाद Prāsāda⁷, there are two altogether different ध्यान Dhyāna-s.⁸ While the deity invoked by the Prāsāda Mantra प्रासाद-मन्त्र is elsewhere called expressly, Mahārudra महारुद्र.⁹

Comparison will show that the ध्यान Dhyāna-s referred to above, are seemingly self-contradictory, and in disagreement with the figure of Sadāśiva, stamped on the seals and also with the somewhat similar images in stone.¹⁰

¹ Hemādri wrote चतुर्वर्गचिन्तामणि between (1260-1309 A.C.). Vide M. Winternitz: *Geschichte der indischen Literatur*, Vol. III, p. 502.

² Hemādri: व्रतखण्डम् Vrata-khaṇḍam (Bibliotheca Indica).

³ Śrī-Viṣṇudharṇamōttaram. Chapter 48, Part III; त्रैविष्णुधर्मोत्तरम्, अध्यायः ४८, यश्च खण्डम्, (Śrī-Veṅkaṭeśvara Press, Bombay).

⁴ In Mahānirvāṇa-tantram, Ullāsa 14, ślōkas 31-37. महानिर्वाण-तन्त्रम् (उल्लास १४ श).

⁵ In Śāradātilakam, 18th Patala शारदातिलकम् १८ पटलः.

⁶ In A. Avalon: Śaṭcakraṇirūpanam, *Tāntrik Texts*. Vol. II, Ślōka 292.

षट्चक्रनिरूपणम्, श्लोकः २९।

⁷ In Śāradātilakam शारदातिलकम् १८ पटलः।

⁸ One in तन्त्रसार, Tantrasāra, Chapter II, and the other in प्रपञ्चसार २६ पटल Prapañcasāra, Chapter 26.

⁹ In Rudrayāmala रुद्रयामल, Patala 48—(V.R.S., MS. No. 214);—(रसिकमोहन Rasika-mōhan's Edition), Patala 50. Also, see Appendix II 5 (b).

¹⁰ The Dhyāna-ślōka of Sadāśiva सदाशिव (given in Mahānirvāṇa-tantram, 14th ullāsa उल्लास), and quoted by the late Paṇḍit Rājānikānta Cakravartī, while editing the Ānuliā Plate (Āitiḥāsik Citra, Vol. I, 1st Ser.)

The images in stone and on the seal are of greater importance than literary texts. their evidences being more definite and tangible; and the apparently meaningless votive inscriptions on two of the images, are nevertheless important as affording for the present the upper limit of the age of Sadāśiva worship in Bengal.

The causes of this multiplicity and divergence of conceptions of the same deity may be stated as follows:

The *Dhyāna* ध्यान varies according to the *Vīja* बीज. A deity might have many बीजमन्त्र *Vijamantra*-s from which severally, the ध्यान *Dhyāna*-s are evolved.

Some *Vīja* is of a general character corresponding to any and every form of the deity in question. Other *Vījas* are applicable only to particular forms of the deity.¹

Each *Dhyāna* also corresponds to a peculiar state of mind (मनोभाव) of the devotee (साधक) who first worshipped the deity through any particular *Vijamantra* बीजमन्त्र and the worshipper who first attained *Siddhi* सिद्धि by the *mantra* is called its ऋषि ṛṣi.² Also the concepts of deities have changed from time to time. (Cf. *Tārā*³ and *Mahīṣamardini*.⁴)

The following propositions may be deduced from the above considerations:—

- (a) The सदाशिव-ध्यान *Sadāśiva-dhyānas* might be later in age than the conception represented by the stone images. In that case the ages of the *Tāntrik* texts would be seriously affected—all of them being brought down to dates later than the 12th century.
- (b) The *Dhyānas* might be earlier.
- (c) The *Dhyānas* might be indication of new concepts of the deity, in vogue at the time.
- (d) The *Mantra* and consequently the *Dhyāna* corresponding to the form of *Sadāśiva* सदाशिव in question, may be no longer extant.

ऐतिहासिक (चित्र, १२ पञ्चाङ्ग, १२ वक्त्र), agrees with the figure on the seal, only in general features and the number of hands, etc. The points of difference which are much greater than points of resemblance, were not recognized by the learned *Pandit*.

¹ This may explain causes of the apparent mutual contradictions of the many ध्यानश्लोक *Dhyānaślōkas* for the one, *Prāsādamantra* प्रासादमन्त्र of Śiva referred to above. For, the प्रासादमन्त्र *Prāsādamantra* is of a general nature and corresponds to any form of Śiva, whatsoever.

² रुद्रयामल पटल ५० *Rudrayāmala, Paṭala 50* (Edition of *Rasika-mūhana Rasikamohana*).

³ Cf. *Tārā*—vide A. K. Maitreya: *Tārātantram* (V.R.S., Edition) Introduction, pp. 11, 15, 19.

⁴ महिषमर्दिनी *Mahīsa-mardini*—vide A. Avalon: *कुलचूडामणि-तन्त्रम् Kulacūdāmanītantram, Tāntrik Texts*, Vol. IV. Introduction, p. 14.

It is known mantras for other deities, are lost ¹

(e) Lastly, the images which are Tāntrik might belong to the Kērala केरल School and might have been introduced by people from other parts of India, like the Sēnas coming from the South into Bengal.²

As for the last proposition, the discovery of Sadāśiva images earlier than the Sēnas is an argument against it; then the date of introduction of the conception from the South, must be before or about the Pāla period.³

But as has been already said, Sadāśiva is as old as the Tantras.⁴ His worship might have developed into a regular form of Religious creed or faith in Bengal much later, during the Pālas and the Sēnas. The existence of Sadāśiva (?) Paintings at Puri and Bhuvanēśvara, and the mention of Sadāśiva by Śaṅkarācārya शङ्कराचार्य (8th century A.C.)⁵ and by Lakṣmaṇa

¹ Cf. महिषमर्दिनी Mahiṣa-mardīnī—in Kulacūḍāmaṇitantram कुलचूडामणि-तन्त्र Tāntrik Texts, Vol. IV Introduction, p. 13.

² There are evidences both indirect and direct, that Mahānirvāṇatantram does not suit the Viṣṇu-kṛāntā विष्णुक्रान्ता (to which Bengal belongs)—one of the three main divisions of India, each having its own particular set of Tāntrik works.

विश्वपर्वतमारभ्य यावच्चतुलदेशतः ।

विष्णुक्रान्तेति विख्याता मुनिभिस्तत्त्वदर्शिभिः ॥—इति शक्तिसंगमतन्त्रम्

For it is not quoted by Kṛiṣṇānanda (who was a fellow-student of Sri Caitanya and who could have used the work for his Tantrasūtra).

Neither is it quoted by his predecessors Brahmānanda Giri and Pūrṇananda Giri in Tūrā-rahasya and Śyāmā-rahasya respectively, though it is quoted in the modern Tāntrik Nibandha, Prānatōsanlatā प्राणतोषणी-लता by Pranakṛiṣṇa Viśvās (or rather by his Paṇḍit Rāmtōsan Vidyālaṅkāra रासतोषण विद्यालङ्कार).

Two of the known dates for Pūrṇananda Giri, are -1499 Śaka=1577 A.C. (date of Śrītattva-cintāmaṇi श्रीतत्त्वचिन्तामणि) - and 1466 Śaka=1544 A.C. (date of Śāktakrama शाक्तक्रम). (Vide श्रीगौरीशक्त वेदाद्युद्धार—‘पूर्णानन्देन ग्रहपरिचयः’ मासि Sahitya, 1325 B.S.)

Also, Mahānirvāṇa-tantram is not included in the list of Tantras, suitable for the Viṣṇukrāntā (vide Tāntrik Texts, Vol. I, Introduction).

³ [Vide Appendix I. for Śiva-Dhyānas.]

⁴ The oldest Tāntrik MS. (in Gupta script) discovered, is dated 609 A.C. Haraprasād Śāstrī—Report on Skt. MSS., 1895 1900, Calcutta, 1901, pp. 3 ff.

⁵ The well known Tāntrik Nibandha, Prapañcasūtra is ascribed to Śaṅkarācārya (published by Woodroffe in Tāntrik Texts). This work was commented upon by Padmapādācārya who ascribes it to Śaṅkara Bhāgavatpādācārya in the colophon. (A MS. copy of Padmapādācārya's commentary, showing the final colophon, is in Varendra Research Society, Rajshahi).

As we know of only one Śaṅkarācārya who was styled ‘Bhāgaratpāda’ and also had a disciple named Padmapādācārya, the authorship of

Dēśika लक्षण-देशिक (10th century A.C.)¹—both Southerners, show that the cult was very widespread and that it had already a long history, in their times.

Prapañcasūtra is to be ascribed, to him, unless there be clearer evidences to the contrary.

¹ लक्षण-देशिकः has given the names of his ancestors beginning from his great-grandfather—*vide* शारदातिलकम् चौरसागरोपाकृष्टलक्षणशालिपरिशोधित Sārādātīlakaṁ, Edition of *Samvat* 1953, Rājārājeśvarī Press, Benares: Patala 25, ślokaś 86-90, [new and critical ed. by A. Avalon: *Tāntrik Texts*, Vols. XVI and XVII, Paṭala 25, Ślokaś 83-87]:

महाबलाय प्रणमोस्मि तस्मै संविज्ञतालिङ्गनशीतलाय ।

येनार्पित मुक्तिफलं विपक्षमास्त्रायशाखाभिरुपाश्रितेभ्यः ॥ ८६ ॥ [८३]

तस्माद्भूदखिलदेशिकवारणेन्द्रः षट्कर्मसागरविहारविनोदशैलः ।

यस्य त्रिलोकविततं विजयाभिधानमाचार्यपंडित इति प्रथयन्ति संतः ॥ ८७ ॥

तन्नदनी देशिकदेशिकोभूच्छ्रीकृष्ण इत्यभ्युदितप्रभावः ।

यत्पादकारुण्यसुधाभिषेकाज्जह्नी परामश्रुवते कृतार्थाः ॥ ८८ ॥ [८५]

आचार्यविद्याविभवस्य तस्य जातः प्रभोर्लक्षणदेशिकेन्द्रः ।

विद्यास्वशेषासु कलासु सर्वास्त्रपि प्रथां यो महतीं प्रपदे ॥ ८९ ॥ [८६]

आदाय मारमखिलं निखिलागमेभ्यः

ओमारदातिलकं नाम चकार तन्त्रं ।

[प्राज्ञः] म एष षट्त्वेरिह तत्त्वसंख्यैः

प्रीतिप्रदानविधयो विदुषां चिराय ॥ ९० ॥ [८७]

... ॥ ९१ ॥ [८८-८९]

इति श्रीशारदातिलके पंचविंशः पटलः ॥ ९५ ॥ समाप्तः ॥

The commentator राघवभट्ट Rāghava-Bhaṭṭa has traced the spiritual descent (गुरुपंक्ति, Gurupamkti) of the author of शारदातिलकम्, while the disciples of क्षेमराज Kṣēmarāja have offered salutations to preceptors — from श्रीकण्ठ Śrīkantha to Utpalācārya उत्पलाचार्य and from Lakṣmana लक्ष्मण to Kṣēmarāja क्षेमराज—

मंसारसिंधोस्तरणैकहेतून्धे गुरुन्मूर्ध्नि शिवस्वरूपान् ।

रजांसि येषां पदपंकजानां तीर्थाभिषेकत्रियमावहति ॥ १ ॥

—शारदातिलके १म पटले

‘गुरुणिनि बज्रवचनं पूजार्थं गुरुपरमगुरुपरमेष्ठिगुर्वपेक्षया वा’ तथा च ग्रन्थलङ्कृगुरुपंक्तिः ‘श्रीकण्ठं वसुमन्तं श्रीसोमानन्दमुत्पलाचार्यानि’ति ‘लक्षणमभिनव-गुप्तं वन्दे क्षेमराजं चे’ति तच्छिष्याः ।—Commentary: Padārthhādarśa पदार्थादर्शः of Rāghava Bhaṭṭa.

Very possibly, this अभिनवगुप्त Abhinava gupta is identical with the Kāśmīrian Śaiva Philosopher of the same name, who was the author of परमार्थसार Paramārthasāra. He too had a disciple named क्षेमराजः Kṣēmarāja—the author of Śivasūtra-Vimarśinī शिवसूत्रविमर्शिनी, who

But the worship of Sadāśiva is coëval with the *Tantras*, as Sadāśiva occupies a prominent position in Tāntrik cosmogony.

According to the Tāntrik psycho-physiological theories about the human nervous system, 'the cerebrospinal axis with the connected sympathetic system contains a number of ganglionic centres and plexuses (*Cakras*, *Padmas*) from which nerves (*Nāḍis*, *Sirās*, and *Dhamanīs*) radiate over the head, trunk and limbs'.¹

According to the mystical doctrines of the 'Tantras, the human body, 'देह' घट, घटन, (पिण्ड, भाण्ड), is an exact reflection on a minor scale of the universe, ब्रह्माण्ड. In both are fourteen regions (*lōkas*)—the seven upper and the seven nether worlds, counting from *Satyālōka* the highest, and these are represented by the *Cakras*, in human body. In both are also mountains, rivers, and the elemental bodily substances.²

The *Śakti*, the personification of universal energy in the abstract, resides also in man, as the *Kuṇḍalini Śakti*. The Supreme Spirit (as also his lower manifestations) reside in man, and the Śākta Tantras call it Paramaśiva, corresponding to the Parabrahman of the Vedāntins and Vāsudēva of the same state of existence according to the Vaiṣṇavāgamas. According to the Śākta Tantras, one of these lower manifestations of Paramaśiva—Sadāśiva, has his seat in the *Viśuddha Cakra* or the *Bhūratīsthāna*, भारतीस्थानं, the *Cakra* situated at the junction of the spinal cord with the *medulla oblongata*, which regulates the organs of articulation.³

belonged to 11th century [end of the 10th and the beginning of the 11th century—M. Winternitz: *Geschichte*. Vol. III, p. 445 and p. 19] लक्ष्मण-देशिक must have therefore flourished some decades earlier. —*vide* श्रीगिरীशचन्द्र वेदाङ्गतीर्थ—साङ्गदाहिलकेर रचनाकाल सौरभ. १७२१ जैष्ठ.

¹ Dr. B. N. Seal—*The Physical Sciences of the Hindus*, pp. 23-7.

Ditto. Appendix C to B. K. Sarkar: *The Positive Back-ground of Hindu Sociology*. Book I. Allahabad, 1914—*Hindu Physiology and Biology*, Sections 4, 5.

² A. Avalon: *Mahānirvāṇa Tantram*. Introduction, pp. XXVI and XLV.

³ विशुद्धाख्यं कण्ठे सरसिजममलं धमधून्नावभासं
स्वरैः सर्वैः शोणैर्हृत्परिलसितैर्दीपितं दीप्तिबुद्धेः ।
समास्ते पूर्णन्दु-प्रथित-तम-नभोमण्डलं वृत्तरूपं
हिमच्छायाणागोपरिलसिततनोः शुक्ल-वर्णाम्बरस्य ॥ २८ ॥
भुजैः पाशाभीत्यङ्कुशवरलसितैः शोभिताङ्गस्य तस्य
मनोरङ्गे नित्यं निवसन्ति गिरिजाभिन्नदेहो हिमाभः ।
त्रिनेत्रः पञ्चास्यो ललितदशभुजो व्याघ्रचर्माम्बराद्यः
सदा पूर्णो देवः शिव इति च समाख्यानसिद्धः प्रसिद्धः ॥ २९ ॥

One form of Tāntrik *Sādhana* aims at the union of *Kulakundalinī* कुलकुण्डलिनी with Paramaśiva, who have their seats in the *Mūlādhāra* *Mūlādharma* (below the *membrum virile*) and the *Sahasrāra* सहस्रार (the upper cerebrum)—corresponding to the सत्य *Satya* and भूलोक *Bhū-lōkas* respectively, in the human body. The sleeping *Kundalinī* is roused by subtle *yogic* process and ascends from centre to centre and on reaching the *Viśuddha Cakra*, it becomes *Sāttvika* सात्त्विक. The *Cakra* (*Viśuddha*) represents *Ākāśa-tattva* आकाशतत्त्व and is also symbolical of *Samhāra*—for, on dissolution, all created things merge and disappear in the void आकाश.

The Prime cause (प्रकृति, मूलकारण) from which all the emanations of Śakti are evolved is called Mahālakṣmī¹ by the Śāktas. She is both manifest² लक्ष्या and immanent³ अलक्ष्या. She is both male and female, at the same time.⁴ The Vaisnavas term this Prime cause—Vāsudēva, while the Āga-mānta (Śuddha) आगमन्त शुद्ध Śaiva Āgamas call it—Sadāśiva.⁵

A Avalon: *Tāntrik Texts*, Vol. II, Commentary of Kālicarāma—

विशुद्धिं मनुते यस्माज्जीवस्य हंसलोकनात् ।

विशुद्ध पद्माख्यातम् आकाशाख्य मन्त्रं परम् ॥

Viśuddha, the great lotus representing *Ākāśa* आकाश is so called, as it causes the purification of *Jīva* by visualising the Supreme Spirit.

1 राजोवाच—

भगवन्नवतारा मे चण्डिकायास्तयोदिताः ।

एतेषां प्रकृतिं ब्रह्मन्प्रधान वक्तुमर्हसि ॥ १ ॥

ऋषिरुवाच—

सर्वस्याद्या महालक्ष्मीस्त्रिगुणा परमेश्वरी ।

लक्ष्यालक्ष्यस्वरूपा सा व्याप्य कृत्स्न व्यवस्थिता ॥

—(प्राधानिकरहस्यम्) दुर्गासप्तशती

Durgāsaptaśatī (*Candī*) with 7 commentaries Nirṇaya sāgara Press; Reprint by Śrī-Venkatēśvara Press, Bombay.

² *Ibid.*, V. 5-6.

³ *Ibid.*, V. 7.

⁴ *Vide* नागोजीभट्टीस्व-प्रयोगविधिः. Introduction to *Candī* with 7 commentaries. Śrīvenkatēśvara Press.

⁵ For the Sādakhya or Sadāśiva Tattva of the Kāśmīr *Trika-kāstra* (System), see:

- J. C. Chatterji: *Kashmir Shaivism*. Kashmir Series of Texts and Studies, Vol. II Fasc. 1, Srinagar, 1914, pp. 65-69;

—षट्त्रिंशत्तत्त्वसंदोहः ॥ योमद्राजानकानन्दार्चयविरचित-विवरणोपेतः ।

काश्मीरसंस्कृतग्रन्थावलिः । ग्रन्थाङ्कः १३ । *K.S.T.S.*, No. XIII.

संज्ञाशतयुक्तीर्णं जगदात्मतया समाच्छाद्य ।

निवसन्त्य एव निखिलानुग्रहनिर्गतः सदाशिवोऽभिहितः ॥ ३ ॥

There are some differences among the Śākta Tantras, Śuddha Śaiva Āgamas, and the Purāṇas, regarding the position occupied by Sadāśiva, the disposition of the five faces of Śiva and so forth. In the Śākta Tantras, Sadāśiva is only a manifestation of the Supreme being. He is practically the same with Ardhanarīśvara अर्धनारीश्वर.

But, in the Śaiva Āgamas, Sadāśiva is the highest and the Supreme being—formless, beyond the comprehension of anyone, subtle, luminous, and all-pervading.¹

Authorities differ and are mutually contradictory as to the तत्त्व *Tattva*-s represented by Śiva's five faces and also the वर्ण colours of these, latter.²

But the Śaiva Āgamas, Śākta Tantras, and the Purāṇas all absolutely agree that Īśāna (Sadāśiva) represents the Ākāśa Tattva आकाशतत्त्व—space, and is of spotlessly white colour.³

The explanations hitherto suggested are not satisfactory. The following is a general description of Sadāśiva collected from all available sources, together with symbolical meanings.⁴

Authorities are absolutely in agreement that Lord Śiva's five faces represent the five elements, viz. क्षिति earth; अप water;

तस्यैव परमेश्वरस्य स्वस्वान्तर्गोद्भासितस्य विश्वस्य विशुद्धसंविम्बान्नात्राधिकरणेन स्वात्मन्येव समुक्तासनात् सदित्याख्यानात् सदाशिवतत्त्वावस्था, तत्र प्रोन्मीलितमात्रचित्र-कल्पनया इदमंशस्य अस्फुटत्वात् इच्छाप्राधान्यम्, अतः स भाविनः समस्तभावराशेः सम्यक् चक्षुरवविभासयिषालक्षणक्रीडारसिकत्वात् अनुपपन्ननिरतस्तद्भूमिकां गृह्णाति इत्यसौ निवसन्नित्युक्तम् ॥ ० ॥

For the Sadāśiva Tattva of S.I., Śaiva Siddhāntas, see :—

- *Der Śaiva-siddhānta*. Eine Mystik Indiens nach den tamilischen Quellen bearbeitet und dargestellt von H. W. Schomerus. Evang. Luth. Missionar in Südindien Leipzig J. C. Heinrichs'sche Buchhandlung, 1912 Pp. 74, 134, 148, 375.

'Sadāśiva, Bezeichnung Śivas, sofern er durch Iecchā Śakti dem Sadakhyā-Tattva innewohnt'

—*Śivapūṇāna Siddhīyāni* of Arunandi Śivāchārya. Translated with introduction, notes, glossary, etc. by J. N. Nallaswami Pillai (Madras, Meykandan Press, 1913). See Book III, 1. 19 II, 54 to 56 and the table of *Tattvas*

¹ Gopinātha Rao—*Elements of Hindu Iconography*, Vol II, Part II, pp. 361-72.

² For, according to a Text of Śaradātīlakam शारदातिलकम्—quoted in Kālicarana's commentary on षट्सन्ननिरूपणम् Ṣaṭcakanirūpanam, verse 28 "तत्सद्भूतसमाभानि सण्डलानि विदुर्बुधाः"—the elemental सण्डल Mandalas must be of the same colours, with the elements (भूत) represented. But authorities do not seem to recognize this rule, in giving descriptions of Śiva's five faces. For, see Appendix II, Texts Nos. 7, 8, 9, 10.

³ Sadāśiva exists firstly as an independent deity and also one of Śiva's five faces is named Sadāśiva.

⁴ [Vide Appendix II]

तेजस् energy (fire); मरुत् wind and व्योमन् space; while Sadāśiva especially represents the Ākāśa Tattva, the element of space.

Of these five faces of Śiva—that called Īśāna, facing upwards and of crystal-white colour—represents *Ākāśa*, space; that called Tatpuruṣa, facing East (or towards the front) and of the colour of the rising sun, i.e. golden yellow—represents wind, *Vāyu*; the grim face named Aghora, facing South (or to the right) of the colour of storm-clouds, i.e. dark-blue, represents the all-destroying element of Fire, *Agni*; the face termed Vāmadēva, pointing towards the North (or the left) and of the colour of corals, i.e. red—represents the element of Water, *jala*; while the remaining face called Sadyōjāta, facing West (or towards the back) and of the pearl-like hue of the full moon—represents the element of Earth, *Prithivī*.

The Purāṇas also give to the five faces of Śiva respectively, the additional names of Sadāśiva, Mahādēva, Bhairava, Umāvaktra and Nandivaktra. Each of these possesses two hands (making ten, in all, for Śiva) and each also has three eyes, with the exception of Vāmadēva which is two-eyed.¹

According to the नैयायिक Naiyāyikas,—the distinctive (गुण-s) qualities of the five elements पञ्चतत्त्व-s are Rūpa (रूप), Rasa (रस), Gandha (गन्ध), Sparśa (स्पर्श), and Śabda (शब्द) respectively. There is nothing absolutely, against the view, and there will in all probability be no mistake in holding this—that Īśāna (Sadāśiva) represents especially the *Ākāśa-tattva*, while his five faces stand for the five elements; and that the weapons and objects held in Śiva's hands, as also the gestures indicated, viz., the आयुध *Āyudha*-s and the मुद्रा *Mudrā*-s either represent or symbolise the five गुण *Guṇa*-s—Rūpa रूप, Rasa रस, Gandha गन्ध, Sparśa स्पर्श and शब्द Śabda, i.e., form, flavour, smell, touch, and sound. This view will be fully developed as each of these *Āyudha*-s and the *Mudrā*-s is interpreted, with respect to its possible uses, both Actual and Symbolical.

The Lotus is one of the most usual objects held in the hands of Indian Images. It is a symbol of eternal life, of perennial freshness and softness.²

The Padma पद्म (lotus) is constantly associated in the hymns and in poetry with the Solar deity, for lotuses open out on the

¹ Īśa, Tatpuruṣa, Aghōra, Vāma, and Sadyōjāta are also described as separate minor deities both in the Purāṇas and the Śākta Tantras. Each of the Paurāṇik forms is five-faced and ten-armed. The Tāntrik Prototypes of these are all four-faced, four-armed, and three-eyed with exception of Aghōra who is ten-armed and has fearful protuberant teeth. They face respectively, the N.E., East (Front), Left, Right, and Back and are coloured white, like lightning, like collyrium, like saffron, and like camphor.

² A. K. Maitreya: 'The Lotus of Life'—*Rupam*, Nos. 15 and 16: The Indian Society of Oriental Art, Calcutta.

rising of the Sun. In the hands of Viṣṇu, it is symbolical of His power of protection.

Also, Viṣṇu, carries the lotus, probably because he was really, in origin, a solar deity.¹ The identification is well-known of Sūrya with Nārāyaṇa, who is contemplated to be in the solar orb in the well-known *Dhyāna Ślōka*:—**ध्येयसदा सविटमण्डल-मध्यवर्त्ती नारायणः**, etc. Also, details are given of the worship of the solar deity having Viṣṇu's form (**विष्णुरूपी सूर्यः**).² The female deities or goddesses carry the lotus as the *Līlākamala* **लीलाकमल**—a sweet smelling and beautiful flower serving for a decoration or nose-gay.

Also, according to a charming and well-known poetical fancy (**कविप्रसिद्धि**) noted, e.g. in *Sāhitya-darpanam*,³ lotuses grow in streams; the River-goddesses Gaṅgā and Yamunā therefore very appropriately carry the lotus-flower in their hands.

The graceful colour, sweetness and tenderness of lotuses have fitly made them appropriate objects of comparison. In representing the hands and the feet of Images to be supported by lotuses (*utpala*-s) as by soft cushions—the Artists certainly mean also to emphasize, that the hands, the feet and the lotuses vie with one another in colour, beauty and tenderness, and they mutually serve to embellish one another. And such comparisons as **पाणि-पद्म** *pāṇi-padma* and **चरणाम्बुज** *caranāmbuja* are therefore made doubly appropriate.⁴ The lotus is therefore symbolical chiefly of *sparsa*—touch and also in a minor degree of *rūpa*—form, *rasa*—taste, and *gandha*—smell.

But as a symbol of the *sparsa-guṇa*, Lord Siva carries the *nilotpala* **नीलोत्पल** (the blue lily—the *Nymphaea stellata*) evidently and simply because he carries the Moon, too, in his matted hair-locks. The love of the Moon and of the blue lilies had been the frequent and favourite theme of Indian poets. The *nilotpala* is as much associated with the moon as the *padma* is with the sun.

¹ Vide V. Natesa Aiyar: *Trimūrti image in the Peshawar Museum*, A.S.I.R. (1913-14), pp. 276-80; Rai Bahadur Hiralal: *Trimūrtis in Bundelkhand*: *Ind. Antiq.* (1918), pp. 136-38.

Gopinātha Rāo, *op. cit.*, Vol. I, Part II, pp. 73-8; also *Matsyapurāṇam* (Ānandāśrama Edition), Chapter 8.

² In **गरुडपुराणम्**, **पूर्वखण्डम्** (*Garuḍapurāṇam*, Pūrvakhaṇḍam. (Bangavāsī Press), Chapter 39.

³ **साहित्यदर्पणम्** *Sāhityadarpanam*, Chapter VII.

⁴ Hand (holding the *Śankha*) is over an *utpala* **उत्पल** in V.R.S. Viṣṇu's $\frac{E(a) 33}{197}$ and $\frac{E(a) 34}{198}$.

Left Foot supported by an *utpala* **उत्पल** in V.R.S. Gaṅgā $\frac{H(c) 1}{354}$, and Sarasvatī $\frac{H(f) 1}{76}$.—vide Catalogue of V.R.S. Museum.

As the wife and the favourite son, respectively of Śiva, both the Devī and Gaṇeśa carry the moon as crest-gem. Naturally, they also carry the blue lily नैलोत्पल instead of the red lotus, *padma*.

Both in Buddhist and Brāhmanic Iconography, the lotus is also shown in the hands, the feet, and on foot-prints,¹ as an auspicious sign.²

Danda, *Śūla*, *Taṅka*, *Vajra*, *Khaṭvāṅga*³—weapons for beating, piercing, cutting, felling and smashing, respectively.⁴ These weapons represent Śiva's terrible aspect as the god of destruction—i.e. his *tāmasika* aspect as the *saṃhāra-kartā*. But we have authority⁵ that there can be, really speaking no sharp division of the various forms of Śiva (and of Kālī, also) into the *sāttvika*, *rājasika*, and *tāmasika* as has been suggested in the case of other deities.⁶

In some conceptions of Śiva (and also of Kālī) the *sāttvika* elements preponderate, while in some others the *rājasika*

¹ Cf. *Caṇḍī - Mūrtirahasyam*, śloka 13: Śākambhari's hands are described to contain representations of lotuses, over which hover bees, drunk with honey.

मुष्टिं शिलीमुखापूर्यं कमलं कमलालया ॥ १३ ॥

... .. विधत्ते परमेश्वरी ।

शक्राक्षरी प्रकीर्तिता ॥ १६ ॥

² Cf. also the Eight glorious emblems of Buddhist Iconography (Skt. *Aṣṭa-Maṅgala*, viz., Cakra, Śankha, Chatra, Dhvaja, Matsya, Śrīvatsa, Padma, and the Pūrṇa Kumbha)—*Vide* Waddell: *Lamaism*, pp. 392-93.

The blue lotus is represented either with all petals upright or with several of the outside rows turned back. The centre is always hidden and the *utpala* always presented in profile. The pink lotus flower is represented full blown, with the centre apparent.'

'The representation of the blue lotus differs from the pink in that the petals are closed, elongated in form and presented in profile. Sometimes the first row of outside petals is turned back, but the centre of the *utpala* is always hidden by the petals.' Alice Getty: *The Gods of Northern Buddhism* (Clarendon Press, 1914). Pp. 172-73. Padma: p. 98.

³ The *Khaṭvāṅga* is a weapon made from the shin-bone or forearm of a dead body, or from the legs of a bedstead for carrying a corpse to the cremation ground. The *Khaṭvāṅga* is a sort of club, to which a Kapāla कपाल skull-cup is attached.

It is naturally associated with Śiva in his (Bhairava and other) terrible aspects, or with Śakti in her Cāmundā form. In form and practical use—it is half-club, *Danda* and half-trident, *Śūla*.

⁴ Descriptions of weapons in Rāo: *El. Hind. Ic.*, Vol. I, Part I, and in Bābū Rāmdās Sēn's *Bhārat-Rahasya*, Part I. ভারত রহস্য ১ম ভাগ ।

The *Vajra*, by itself is the subject of a special Monograph, by Chr. Blinkenberg: *The Thunderstorm in religion and folk-lore*; (Camb. Univ. Press, 1911).

⁵ Introduction to चण्डी Caṇḍī-Commentary, *Nāgōjī-Bhaṭṭa*. Edition with 7 Commentaries (Nirṇayasāgara Press; Reprint by Śrī-Veṅkateśvara Press).

⁶ See, e.g. Vīrabhadra, in H. Krishna Śāstrī: *South Indian Gods and Goddesses* (Madras Govt. Press, 1916), p. 159.

elements are in the majority, while again in others the *tāmasika* qualities might be mostly present.

But all these elements are co-existent in greater or smaller degree, in all forms of Śiva and even of Kālī; e.g. the weapons of war, etc.—especially, the *kapāla* (drinking cup) and the *khatvāṅga* represent the *tāmasika* aspects. The *Vijapūra* (*Citra Medica*), and the bow and arrows stand for the *rājasika* qualities. The *Varamudrā*, *abhayamudrā*, and *akṣa-sūtra* show the *sāttvika* elements of the deities.

The bow and arrows, pāśa, aṅkuśa.—The Texts giving the different symbolic meanings conveyed by these, are given elsewhere [in Appendix II § 4]. The subtle form of *pāśa* is wordly attachment, as it is the cause of bondage of the human soul. It stands for *icchāśakti* (*taṁō-guṇa*).

The psychic form (वासनात्मकं रूपं) of the elephant-goad is superior knowledge, because it generates repugnance to wordly passion in human mind, which then naturally shuns things distasteful. It stands for *sattva-guṇa*. The *pāśa* and the *aṅkuśa* always go together.

The arrows which are thrown from the bow, together with this latter, stand for *rajō guṇa*. Attachment to wordly pursuits leads to acts. The objects of attachments (viz. रूप *rūpa*; रस *rasa*; गन्ध *gandha*; स्पर्श *sparsa*; शब्द *śabda*)—though sweet and pleasant at first, ultimately lead to sorrow and pain.

In images when the left hand or one of the left hands holds the bow, the right hand or the corresponding right hand is used for arrows. These are taken out of the quiver at the back, with the fore and middle fingers.

Damaru, Ghaṇṭā.—The first is a musical instrument and the second is a noise-making device—to be used also in war.

These are symbols of the शब्दगुण *śabda-guṇa* (of Śiva), of sound—the primal element which exists even before creation and also after its dissolution, and from which the universe is evolved, according to the *Sphōṭavādins*—the *Śābdikas*.

Vijapūra (Citra Medica)—the symbol, of Śiva's क्रियाशक्ति *Kriyāśakti*, creative power.

The myriads of created things floating in the vast expanse of space are represented by the countless seeds of the fruit, which also is the one—most liked by Gaṇeśa (who again is a personification of space). The fruit (*Citra Medica*) is a kind of lime of large size.¹ The fruit must be also symbolical of *Rasa* रस.²

¹ Called—मधुकर्कटिका *Madhu-karkatikā*, जम्बीर *Jambīra*, also promiscuously, in the *Āyurvedic Nighaṇṭus*, e.g. वैद्यकशब्दसिन्धु *Vaidyaka-śābdasindhu* of Pandit Umēśacandra Vidyāratna. In parts of N. Bengal, the name सुखुर or मञ्जर for the fruit, might be most likely from मधुकर्कटिका.

² Cf. also Gaṇeśa's sugar-cane and त्रिपुरसुन्दरी *Tripurasundarī*'s sugar-cane bow.

Akṣamālā.—The garland of beads in Śiva's hands most likely represents the letters of the alphabet—the मातृका-वर्ण *Mātrikā-varṇa*-s, beginning with 'a' and ending in 'kṣa' (अकारादि—क्षकारान्तानि).¹ The Akṣa-sūtra is therefore a symbol at once of *rūpa* and *śabda*.²

सर्पराज *Sarparāja*.—The snake Vāsukī is explained in the texts quoted as Śiva's majesty and awe, which stun with fear, the three worlds. The coils of the cobra represent the principle of cosmic evolution or of life, while the deadly poison in its fangs, is a symbol of the contrary principle—involution or death. Its habit of giving off sloughs periodically symbolises re-incarnation and re-birth.³

Agni.—The purificatory sacred fire (*agni*) destroys and yet purifies. At the time of destruction, the flames of this holy fire, leap up in an all-destroying conflagration and consume the universe. But this destruction is only the prelude to creation, anew.

Śiva's three eyes represent his three aspects as the creator the preserver, and the destroyer—or they stand for Sūrya (āndra, and Agni).

Kṛipāṇa—as a weapon of destruction represents Śiva's *tāmasika* aspect. But as an instrument for the destruction of the forces of evil and *avidyā*, it symbolises the *sattva-guṇa*.

Iconographically, the Aryan (Brāhmaṇic) sword is always represented as straight; against this and in contradistinction, the (*asuras*) demons have always the curved sword, 'half bill-hook, half falchion, and equally suited for ripping up a foe, or for cutting a path through the jungle'.⁴ The form of the *asura* (demon) sword, might have also suggested itself from the cultivator's rude sickle, of which it was but a modification, showing that the *asura* civilisation was still crude and in its infancy—hardly above the primitive or rustic stage. Similarly their shield probably consisted of tough pieces of animal-hide only.

¹ Cf. the garland of severed heads—which are really the *Mātrikā varṇas*, upon Goddess Kālī's body. Arthur Avalon: *The Serpent Power* (2nd revised ed.), Ganesh & Co., Madras, 1924 (Introduction, IV. The Garland of Letters; pp. 89-104 and especially pp. 102-4.)

² Cf. the (broken) tusk of elephant in Gaṇeśa's hands from which highly polished looking-glasses of ivory were made and which (tusk) also the deity used as a stile in writing out the *Mahābhārata*, most probably, represents *Rūpa* (and *Śabda*, too). Similar, are the purposes of his string of beads.

For the different kinds of materials used in making rosaries for Tāntrik Worship, see Waddell: *Lamaism*, pp. 205-11; also प्राणतोषणौ—
३म काण्डः।

³ See, also, Havell: *The Ideals of Indian Art* (1911), Chapters IV and V.

⁴ Hunter's *Orissa* (1872), Vol. I, p. 295.

Comparisons being possible, only between objects having some points of similarity in common, such similes as the असिलता, निखिंश-लता show that the Aryan sword possessed the suppleness of a creeper. It might be moved to and fro, or, be violently twisted but the Aryan sword always retained its shape and resilience.

For the first time (?), in Vijayasēna's *Dēopādā Prasāsti*, the Indian *Kṛipāṇa* is compared to a hooded black cobra.¹

This possibly points to the date of introduction from the South (?) of the curved sword खड्ग now so much in use in Bengal especially in the hands of the goddess Kālī, whose special weapon it is. It is only a cutting weapon; it cannot pierce. The use of the Bengal खड्ग *khadga* as a weapon of war must be more modern.

The Bengal *khadga* खड्ग of Kālī exactly looks like the fully expanded hood of a cobra (काल-भुजंग) seen from the profile and clearly, was fashioned after it.²

When a right hand weilds the sword (खड्ग) then its corresponding left hand must hold either the potsherd (खर्पर) for holding blood of victims or the shield (खेटक). The bow and the arrows, necessarily go together as also the sword and the shield.

The Digit of Moon on Śiva's clotted locks of hair is the sixteenth lunar digit, *Amā Kalā* अमा-कला containing nectar. It is symbolical of Śiva's divine power (ऐश्वर्य).³

¹ E.I., Vol. I. Umāpatidhara's *Pradyumnēśvara Temple Prasāsti*, (Verse 6.)

L. 6:—यस्मिन् सङ्गर-चत्वरे पटुरटनूयोपहृतद्विष-

दुर्गं येन हपायकालभुजंगः खेलायितः पाणिना ।

दैधीभूतविषकुञ्जरघटाविस्त्रिष्ट-कुम्भस्थली-

मुक्ताखूलवराटिकापरिकरैर्व्या

L. 7:—

मं नदद्याप्यभूत ॥

Kielhorn's translation of the above ślōka, Verse (6):—

'The battle-fields, crowded with adversaries challenged by his shrill-sounding drums on which he made his hand playfully wield the serpent-like sword, are still covered all over with multitudes of pearls, resembling large Cowries, from the cleft frontal globes of the arrays of opponents' elephants, scattered (by him).'

Certainly the reference is to a snake-charmer playing with his hands before a black cobra, to the accompaniment of the beating of drums, in a courtyard, strewn with consecrated or incanted (मन्त्रपूत) sea-shells (cowries).

² The special and peculiar name for this weapon given in parts of Central Bengal is मेखतुक. According to the *maître d'armes*, Pulinvihārī Dās, the word is probably derived 'from महाखलविष or महाखलविष', rather, perhaps from ०—खलविष-क or ०—खलविष-क.

³ Arthur Avalon: *The Serpent Power* (2nd revised ed.), Ganesh & Co., Madras, 1924. Description of the six centres, p. 68;—Śiva is also spoken of as 'possessed of the down-turned digit (Kālā) of the Moon which constantly

Comparisons may be drawn also with the symbolical representations of the five senses in Buddhist paintings, viz. :—

(1) Sight (by mirror); (2) hearing (by conch); (3) Smell—(vase of perfume); (4) Touch—(silk); and (5) Taste—(fruits).¹

Thus, the symbolical meanings suggested for Sadāsiva and his *Āyudhas* and *Varṇas* are fully supported by the Indian Texts, and also from the above Buddhistic analogy.

drops nectar'—'This is the Amākalā'. Arthur Avalon: *Tāntrik texts*, Vol. II. षट्चक्रनिरूपणम् श्लोक २९। औषधरत्नटीकायाम्—“तथा सदा सुधा-
खाविचन्द्रमसः कलाधोमुष्मान्वितम् इति।”

¹ Alice Getty: *The Gods of Northern Buddhism* (Clarendon Press, 1914): Frontispiece (in colours):—Tibetan Temple Banner, portion marked J. 2; pp. 160–62. See also Introduction—*General Survey of Buddhism and its Evolution* by J. Deniker, p. xlix (6).

PART III. ICONOGRAPHY AND ART.

Following upon the death of Emperor Harṣa, a chaotic state of affairs arose, and Northern India and especially Bengal lapsed into a state of anarchy (*नाक्षत्र्याय*). Towards the last part of the Gupta rule, the seat of Government was removed to Kanauj. This period further saw the over-growing with primeval forests and the irruption of the aborigines.

But attempts were slowly made by the people of the soil to put together the broken fabric of society and religious and political life, and a period of reconstruction followed. But the reconstructed Brahmanical faith was not at all similar to its predecessor. Tāntrika thought and practices had grown up deeply influencing Buddhism and Brahmanism alike. Slowly and surely, the octopus of Brahmanism also gathered strength and began to strangle and absorb Buddhism. Simultaneously with this process of assimilation of Buddhism to Brahmanism, internal disintegration was going on, in the religion itself, and Buddhism made during this period a dangerous compromise with the Brahmanic faith. Strange cults and sects arose—some of them curious mixtures of Brahmanism and Buddhism.¹

Ultimately, there was no sharp line of demarcation between Mahāyāna Buddhism and the Brahmanic mythology and images, and especially those connected with the cults of Śiva.

Both, Buddha and Śiva, were self-controlled: both practised *yōga योग*; the one conquered Māra and his hosts, and the other vanquished the god of love—both were *स्मरजित् smarajit*. Buddha was a person of extreme kindness and compassion for all created things. Śiva extended his protection to all: his retinue consists of ugly and despised goblins.² Again, Buddha delivered sermons to promulgate his doctrines, while Śiva graciously disclosed to the world, the hidden

¹ Vincent Smith: *Early History of India*, 3rd Edition, pp. 367-68; E. B. Havell: *The Ideals of Indian Art* (1911), Chapter IV; *Imperial Gazetteer*, Vol. II, Mediaeval India.

² To set off his compassionateness all the more effectively, the Buddha is conceived to pass through whole cycles of birth: among all possible created beings—some of material bodies (quadrupeds for example) and a few of spiritual bodies; 'the life of the Buddha.....must, indeed, be conceived in an ample sense, according to the grandiose Indian conception—whereby,.....the biography.....covers the whole series of countless births, under all forms of existence, which were necessary for the accumulation of the positive and negative characteristics manifested finally in the Great Being, the perfectly Illuminated'—A. Fouchér: *The Beginnings of Buddhist Art*. Preface by F. W. Thomas.

mystical doctrines of the *Tantra* তন্ত্র. The similarity between Buddha and Śiva is now complete.

In the next stage, we find images of the Buddha being worshipped at Śaiva shrines, and examples of such oblivious worship are existent even up to the present times.¹ On the other hand, Buddha as an incarnation of Viṣṇu has the latter's characteristic *Śrīvatsa* শ্রীবৎস mark.

To the same period, must belong the seated Śiva Image (?) with the *Vyākhyāna-mudrā* ব্যাখ্যান-মুদ্রা, from Magadha (in the Museum of the Varendra Research Society)² and the seated Viṣṇu Image), in *Mahārāja-līlā* মহারাজলীলা pose, from সামরবিধী Sāgardighi, Dt. Murshidabad (now in the Vaṅgiya Sāhitya Parisat, Calcutta).³

By slow and almost unconscious steps, the great mass of worshippers, during this period, were drawn towards the Brahmanic faith. Those who did not pay homage to its growing strength were mostly swept away helpless derelicts,⁴ some

¹ Cf. The image of the Buddha worshipped as Śiva, at Śibbāḍi শিববাড়ি, Dist. Khulna, Bengal. Vide Professor S. C. Mitra—History of Jessore, Khulna, Part I, যশোরের খুলনার ইতিহাস, প্রথম ভাগ, (শিববাড়ির বৌদ্ধমূর্তি)—plate.

Also, Cf. the image of Mañjuśrī worshipped as the Brāhmanic Tāntrik Deity, Bhuvanēśvarī, at Bārā, বারা, District Bīrbhūm—vide Mahārāj Kumār Mahimārañjan Cakravartī: কীরভুম বিবরণ, দ্বিতীয় খণ্ড. *Description of Bīrbhūm, Part II*, Plate 26 and pp. 67, 72.

Another parallel and striking instance of the slow process of transformation of Buddhistic institutions into Brāhmanic ones which still goes on in Nēpāl, is illustrated in—*History of Nepal translated from the Parbatīyū* by Munshī Shew Shanker Singh and Paṇḍit Shri Gunananda:—with an Introductory sketch by the Editor, Daniel Wright, M.A., M.D.. (Cambridge, 1877); Plate XI, p. 174, shows how an old, pure Buddhist *Caitya* is being turned into a *Mukhalīngam*. Of the specimens of several forms of Caityas given, the central one is an old, pure Buddhist mound-temple. That to the left is a mixed Hindu and Buddhist Shrine, combining the *Līnga* and *Talharī* with Buddhist figures.

² See *Catalogue*, V.R.S. No. $\frac{I(b)18}{449}$.

Avalōkitēśvara also has a two-handed seated form resembling Śiva and carrying the trident with a serpent coiled round it—vide A. Getty: *The Gods of Northern Buddhism*, p. 56.

³ Illustrated in Mr. R. D. Banerjee's বাঙ্গালার ইতিহাস Vol. I, Plate 23. Put to the latter half of the 11th century or the first half of the 12th century A.C., on the strength of resemblances with two other images from the same locality, one of which is inscribed.—See *Descriptive List of Collections*. V.S.P. Museum.

⁴ E.g. the নাথ-পন্থী Nātha-Panthī sect now represented by the Yōgi যোগী (জুগী) caste of Bengal (ব. সা. প. প. ১৩২১ সাল। ২৩১ পৃঃ। V.S.P.P. 1321 B.S., p. 231).

(শ্রীহরপ্রসাদ শাস্ত্রী—পালবংশের রাজত্বকালে বাংলার অবস্থা। 'প্রবর্তক' ৮ম বর্ষ, ১০ ম সংখ্যা। কার্তিক ১৩৩০ সাল।)

(শ্রীশীতলচন্দ্র চক্রবর্তী—ত্রিপুরার সিদ্ধদিগের জীবনযুগান্তে ধর্মসংস্কারের গূঢ়ত্ব। 'প্রাচী' ১ম বর্ষ, ১ম খণ্ড, ৩য় সংখ্যা। ১৩৩০ সাল। ২২৮-২৩০ পৃঃ।)

of whose miserable descendants are to be met with even in the present times.¹

Though Buddhists, the later Pāla Kings of Bengal favoured other religious sects also and made pious gifts to Brāhmaṇas. Though Buddhism was the prevailing religion, the other religious cults were far from being extinct.

On the other hand the *Pāśupata* Śaivism especially must have enjoyed considerable popularity.² Nārāyaṇapāla-dēva's

(শ্রীরাজমোহন নাথ—নাথধর্মে স্থপিত্ত্ব। 'ব. সা. প. প.' ৩১ ভাগ, দ্বিতীয় সংখ্যা। ১৩৩১ সাল। ৭৬ পৃঃ—)।

(শ্রীঅমলাচরণ বোষ বিদ্যাভূষণ—নাথপন্থ। 'প্রবাসী' ২১ ভাগ, ৫ম, ৬ষ্ঠ সংখ্যা। ১৩২৮ সাল। ফাল্গুন, চৈত্র)।

It is doubtful if the name *Nāthapanthā*, for the sect is strictly accurate. The names given in the spiritual genealogy of Masters (Gurupaṅkti গুরুপাংক্তি), successively teaching worship of any particular deity, all end with the honorific epithet *নাথ* (lord). These teachers (Gurupaṅkti) necessarily vary from deity to deity and are classed under three different groups—the Divine, the Beatified and the Human, i.e. the Divyaugha দিব্যীঘ, the Sidhaugha সিদ্ধীঘ, and the Mānavaugha মানবীঘ respectively—Vṛddha Jagannmōhan Tarkālakāra : *Mahānirvāṇatantram* (1320 B.S.), p. 280, Note 149.

The epithets *Nātha* নাথ and *Īśvara* ইশ্বর—both meaning 'Lord'—are associated only with Śiva. Therefore all Śaiva shrines are indicated by either of these two epithets. Similarly the epithet *স্বামী* Svāmī 'Master' is associated with Viṣṇu, whose shrines are numerous in Southern India. M. A. Stein : *Rājataranginī* (Translation)—īśa : īśvara in names of Śiva Temples,—svāmin in names of Viṣṇu Temples. Canto iii, 263 n. and ii, 369 n. :—īśvara, in names of Śiva Temples, Canto i, 106 n.

It is to be noted that Jagannātha of Puri, is both a Śaiva and Vaiṣṇava Shrine. For, Jagannātha is the *Bhairava* of Vimalādev বিমলাদেবী one of the fifty-one (51) *Pīṭha-śaktis*; while He is mentioned as স্বামী in Śrī Caitanya-dēva's famous hymn with the refrain জগন্নাথঃ স্বামী জয়নপথগামী ভবন্তু মে.

Very probably the Nātha-panthins represented some Non-Brāhmaṇic, or Buddhist sect deeply influenced by Śivaite doctrines.

The Yōgi যোগী (জুগী) sect which has not been at all studied, is slowly disappearing and is also being absorbed by Brahmanism.

¹ Cf. also the Dharma ধর্ম worship still prevalent in Bengal, discovered through the labours of Paṇḍits Haraprasād Sāstrin, Nagendranath Vasu, and Mr. Dīnēśachandra Sen.

(শ্রীপ্রভাত কুমার যুগোপাধায়—ধর্মপূজা। 'প্রবাসী' ২২ ভাগ, ১ম খণ্ড। ২য়, ৩য়, ৫ম সংখ্যা। ১৩২৯ সাল। ১৫৮ পৃঃ, ৩২১ পৃঃ, ৬৫৫ পৃঃ।)

² It is proved that the worship of Lakulīśa not only extended over Rājputanā but had spread as far South as Mysore and as far East as Orissa. See D. R. Bhāṇḍārkar : *A.S.I.R.*, 1906-7 : *Lakulīśa*.

Bhagalpur copperplate inscription records the gift of a village in favour of a Śaiva Shrine and the Assembly of Pāsupatā-cāryas (पाशुपताचार्य-परिषत्) at Kalasapota (कलसपोत).¹

Similarly, Vaidyadēva's Kamauli plates² which may be assigned to the last quarter of the 11th or the first quarter of the 12th century, begin with an invocation to the Varāha Incarnation of Viṣṇu after the Mantra ओँ नमो भगवते वासुदेवाय, while Vaidyadēva calls himself, both Parama-māhēśvara and Parama-vaiṣṇava.

Also similarly, the Assam plates of Vallabhadēva (dated, Śaka Samvat 1107)³ invokes, after the Mantra ओँ नमो भगवते वासुदेवाय, firstly Gaṇeśa and secondly Viṣṇu in his Varāha Incarnation, while it records the foundation of an alms house (अन्नसत्त Annasattra) or place for food-distribution (भक्तशाला Bhakta-śālā) near a temple of the god Mahādēva (Śiva) and an endowment in favour of it.

The Belabo Grant by Bhōjavarman of the 11th century A.C. begins with an invocation to the Lunar deity—चन्द्र Candra. The king calls himself Parama-vaiṣṇava.⁴

The dilapidated Vējnīsār वेङ्गनौसार copperplate inscription of Harivarman (10-11th century A.C.) very probably describes him as a Parama-vaiṣṇava⁵; while Bhaṭṭabhavadēva (भट्ट-भवदेव)'s Bhubaneśvara Prasasti⁶ begins with the Mantra ओँ नमो भगवते वासुदेवाय followed by an invocation to Viṣṇu.

On the other hand, the earliest record of the Sēna Dynasty—the (Dēopādā) Pradyumnēśvara Temple Prasasti of Vijaya-sēna begins with the six-syllable Mantra षडक्षरिमन्त्रं of Śiva ओँ नमः शिवाय. This is followed by an invocation ślōka, each, to Umāmahēśvara उमानहेश्वर, to Pradyumnēśvara प्रद्युम्नेश्वर and to the Lunar deity—Candra चन्द्र. The inscription further informs that Vijayasēna's father Hēmantasēna was a devout Śaiva while the Prasasti itself, the composition of poet Umāpatidhara, belonged to the magnificent Pradyumnēśvara Temple which Vijayasēna had built.

While the existent shrine of Nakulēśvara (Lakulēśvara) at Kālighāt, a suburb of Calcutta, must date from remote past as Nakulēśvara is by tradition the Bhairava of one of the fifty-one Pīṭha-śaktis, also.

But it is very probable that the plastic conceptions and representations of Śiva-bhairava and of Bhṛīṅgin भृङ्गिन् especially, were deeply influenced by the doctrines of some fanatical Śivaite sects. The shrivelled-up form of Bhṛīṅgin is typical of some yōgī of the Lakulīśa Pāsupata or Kāḷāmukha or some other extreme Śivaite sect. [Vide Appendix III.]

¹ अक्षयकुमार मैत्रेय । गौडलेखमाला । Gauḍa-lēkhamālā (V.R.S. publication.)

² Ditto. *Op. cit.*

³ Ditto. *Op. cit.*

⁴ J.A.S.B., Vol. X.

⁵ Nagendranath Vasu.—*The Castes and Sects of Bengal*. Vol. II, p. 215.

⁶ E.I., Vol. VI.

The Sītāhāti-Naihāti plate of Ballālasēna opens with an invocation *ślōka* to Ardhanārīśvara (dancing furiously at the evening twilight) after the Mantra ॐ नमः शिवाय। The record further informs that Ballālasēna was a Paramamāhēśvara. Three of the plates of Lakṣmanasēna open with the same invocation *ślōkas* to Śiva—seated in *Dhyāna* posture and to Candra while the Mādhāī-nagar has a beginning verse about Umāmahēśvara उमामहेश्वर, which is followed by another invocation to Candra.

Each of these four inscriptions begins also with Viṣṇu's eight-syllable अष्टाक्षरि Mantra ॐ नमो नारायणाय, while they all agree in describing Lakṣmanasēna as a Parama-vaiṣṇava.¹ But nevertheless there need not be supposed any real contradiction. Even now, a Śaiva may give and do give offerings and prayers to other deities too, though his own special god may be Śiva.

But Viśvarūpasēna's copperplate inscriptions invoke in the beginning *ślōka*, Nārāyaṇa, Sūrya and Candra, while Kēśava-sēna's inscription begins with an invocation *ślōka* each to Sūrya and Candra. Both are called परम-सौर and their inscriptions begin with the Mantra ॐ नमो नारायणाय। Yet, all the copperplates of the Sēna Dynasty, some of which are no longer traceable, very probably had the Sadāśiva seal, while each of the Sēna Emperors had an honorific title ending in the epithet शङ्कर Śaṅkara.

From the above facts a transition and change in religious worship may be traceable and the following propositions are deducible:—

The first Sēna Kings were specially devoted to Śaiva Worship and naturally their inscriptions had a seal with an engraved figure of Śiva in the Sadāśiva form.

(Gradually Śaiva Worship fell more and more in disfavour, while the Vaiṣṇava and the Saura which could never have died out became more and more current in Eastern India. A transition from the Solar deity to Viṣṇu or *vice versa* is only the next inevitable step, for Viṣṇu is really in origin a Solar deity.²

When the form of worship was changed, the practice of fixing the Sadāśiva seals to copperplate grants must have been still adhered to, by the later Sēnas, only to keep up blindly the old tradition.

But fortunately all the above deductions may be fully checked by facts.

¹ Cf. the more specific appellation *Parama-nārasimha* in Jaynagar, Govindapur, and Mādhāīnagar Plates.

² V. Natesa Aiyar: *Trimūrti image in the Peshawar Museum. A.S.I.R.* (1913-14), pp. 276-80; Rai Bahadur Hiralal: *Trimūrtis in Bundelkhand. Ind. Antiq.* (1918), pp. 136-38. Also vide Note No. 1, page 195 *supra*.

Palæographic considerations must place the earliest Sadāśiva image in the *V.R.S.* between 950–1050 A.C. and the latest example in the *V.S.P.* somewhat after the latter half of the 12th century A.C. The evidence of literary texts show that Sadāśiva Worship was fast falling out of popular favour in Bengal as early as the 14th–15th centuries A.C.

All sculptural styles, viz. the Old, the Mediæval, the Transitional, and the Advanced forms¹ are fully represented in the collection of Sūrya in the *V.R.S.*, while none of the specimens some of which are inscribed may be put to a period later than the 10th–11th centuries A.C.

In the Viṣṇu group of images in the *V.R.S.*, only a few specimens are in the old style, all the rest being in the Mediæval and Advanced styles, while most of the inscribed specimens date from 11th to 13th centuries A.C.

Since vandalism did not choose out images of a particular period or sculptural style for destruction, and since there is nothing to disprove the fact that the images extant are equally representative of all the five principal Brahmanical religious sects, the conclusion may be drawn that Sadāśiva Worship was almost wholly supplanted by Śaiva Worship which partly gave place to the worship of Viṣṇu.

Detailed descriptions of the Sadāśiva seals and of the images in clay-chlorite.

The three Sadāśiva images in black chlorite stone in the Museum of the Varendra Research Society disclose a remarkable family-likeness, which is far from being accidental.

¹ Regarding the principles on which this entirely new system of classification of the sculptural styles of Bengal are based, complete information and full discussions would be given in my forthcoming volume 'On the Mediæval Art and Religious Worship of Eastern India.'

These main divisions are, however, more or less elastic and merge successively into one another, imperceptibly or by slow degrees. But the chief characteristics of the main periods are sufficiently settled and definite for all practical purposes.

Some other scholars have also attempted similar classifications recently. See, Dr. Stella Kramrisch: '*Sculpture of Bengal*', in the *Modern Review*, Vol. XXXIII, No. 1, January, 1923 (Calcutta). In this illustrated article, are recorded the results of her examination of the art-treasures of the Varendra Research Society, Rajshahi. In her investigations, the learned doctor arrived at conclusions mostly similar or parallel with mine, being the only ones possible in the cases in view.

শ্রীনিনীকান্ত ভট্টশালী—(বঙ্গীয় ভাষাধর্মের বিভিন্ন যুগ)। 'ভারতী', জ্যৈষ্ঠ, ১৩৩১। ৫০
বর্ষ—২য় সংখ্যা। In this Bengali article (also illustrated), Mr. Bhaṭṭasālī has traced only a few characteristics of the main divisions, in an interesting and brief manner.

Also, see Dr. St. Kramrisch: '*Pala and Sena Sculpture.*' *Rūpam*, No. 40, October 1929, The Indian Soc. of Oriental Art, Calcutta.

No systematic attempt at study and classification of these sculptural specimens and for correlating the Sculptural styles with the Epigraphic data were however hitherto attempted.

Iconographically, these three specimens also illustrate a most interesting phasis in the mutual assimilation and approximation of the Brāhmanic and the Buddhistic faiths. For, not only, all these three images show the *Abhaya-mudrā* अभयमुद्रा in *Vyākhyāna* व्याख्यान style and the *Varada-mudrā* বরদমুদ্রা in *Bhūmisparśa* ভূমিস্পর্শ style (—which styles are peculiar to Buddhistic images) but they all show on the pedestals, the architectural or sculptural device of an elephant sitting reposedly between two lions.

In the backgrounds (পীঠ *Pīṭhas*) of Brāhmanic images, one of the usual devices is that of the lion triumphing over the elephant.¹ It might be symbolical of the triumph of knowledge over stupidity—as the burning eyes of the lion peering out of the darkness of the night, might stand for *jñāna-dr̥ṣṭi*; while the elephant in rut, which knows no goad, might be the personation of stupidity.

But the decorative device of an elephant sitting between two lions is absolutely rare in Brāhmanic Iconography. In fact, these (Sadāśiva) images alone among the Brāhmanic ones in *V.R.S.* show this device, while it is a quite usual ornamental device in Buddhist images.²

However, the idea of *ahimsā* অহিংসা is not definitely traceable to any Brāhmanic text older than Buddhism, according to some scholars who think it to be of Non-Brāhmanic origin.³

But, whosoever might have been first responsible for choosing the *Vāhanas* of Śiva and his family, it is undeniable that nearly all these animals are mutually inimical. The Lion (of the *Dēvi*) and Śiva's Bull, Lakṣmī's Owl and Gaṇeśa's Rat, Kārttikēya's Peacock and Śiva's coiling Serpents (in hair-locks), Śiva's Snakes and Gaṇeśa's Rat and Sarasvatī's Swan—all these animals form pairs, whose mutual relationship is that between the eater and the victim (খাদ্য-ভক্ষ্য), or one of perpetual enmity which had become already proverbial in Pāṇini's⁴ time.

¹ The common ornamental and sculptural devices have been nearly all noticed by scholars:—

(The *Makara*):—Mr. Henry Cousens, *A.S.I.*, Annual Report (1903-4)—The *Makara* in Hindu ornament.

(The *Lion over the Elephant*):—Mr. O. C. Gangoly. *The Modern Review* (September, 1919).—The story of the Lion and the Elephant. Also see the comments on the above, in subsequent issues of the Review.

(The *Kīrtimukha*):—Mr. O. C. Gangoly in the *Rūpam*, No. 1, The Ind. Soc. Or. Art, Cal. 1920. (The conclusions arrived at herein are not absolutely accurate, as the article is based on insufficient materials, so far as the Bengal school is concerned).

² E.g. *The Elephant between Lions* is found in the *V.R.S.* (Buddhist) Images, Nos. $\frac{A(a)2}{266}$, $\frac{A(a)4}{245}$, and $\frac{A(a)9}{250}$.

³ *Vide Encycl. R.E.* under *Ahimsā*; also see *Chāndōgya* 3. 17.

⁴ Cf. Pāṇini's *Sūtra*—*येषां च विरोधः शास्त्रिकः*—II. 4. 9.

Such animals must have been chosen only to bear out more powerfully Śiva's greatness. Before his divine presence, animals whose mutual enmities were proverbial forget their differences and hostilities, and all of these pay respectful homage¹ and render most devoted services to their divine masters.²

The date of the oldest Sadāśiva image (*V.R.S.*) No. $\frac{C(b)3}{160}$,

which is inscribed, has been approximately fixed as about 950-1050 A.C. This specimen discloses complete assimilation and approximation of Brāhmanism and Buddhist faith. For, all the attendants of Śiva, his bull, etc. are totally absent. The pedestal shows the device of an elephant sitting composedly between two lions, one on either side. The fifth right hand, touching the lotus throne in the exact style of *Bhūmisparśa*, has the *Varada-mudrā*. The first right hand which is sadly mutilated seems to have been held over the breast in a pose

¹ With this, might be compared the scene of the animal world reverencing a sacred tree, figured in a relief, from the inner side of the Second Architrave of the East gate of Sāñci-stūpa.

Therein, Snakes and गरुड Garuḍas, and other mutually hostile creatures pay reverence to the Bodhi tree side by side. *Vide* Grünwedel: *Buddhist Art in India*, London, 1901, p. 50.

² Though the figures of *Vāhanas* are generally represented on the pedestals of their particular deities, the converse is certainly not true.

Thus, if figures of the Lions and the Elephant on the pedestals of Sadāśiva Images are taken as representations of *Vāhanas*, mistakes and contradictions will arise. For, firstly the Lion was never described in Paurāṇik or Tāntrik texts as the *Vāhana* of Śiva in any of his forms. Secondly, if the elephant is taken as the deity's *Vāhana*, greater doubts and difficulties will arise.

Then the image might in the first instance be presumed to be that of an unknown form of the Buddhist Bodhisattva Samantabhadra समन्तभद्र who rides on an elephant or the (Sadāśiva) Image might also be taken as representing the Tāntrik deity—*Tatpuruṣa*. This *Tatpuruṣa* is the personification of the twenty-four syllable (*Tatpuruṣa*-) *Mantra* evolved from the *Gāyatrī*, and is mounted on an elephant.

यथा 'रक्षस्य'—गायत्रीप्रभवो मन्त्रः स्वर्णवर्णस्तुक्कलः ।

वश्यको गजवाहस्य ईश्वरः पुरुषः स्मृतः ॥

तत्पुरुषश्चन्द्रबिम्बाभो ऋग्वेद्वद्वनोऽशुमान् ।

Vide Vridha Jaganmohan Tarkālaṅkāra : *Mahānirvāṇa Tantra*, p. 808, 1320 B.S. बुद्ध जगन्मोहन तर्कालङ्कार । मशनिर्वाण-तन्त्रम्, ८०८ पृष्ठा (१३२०) ।

Probably this *Tatpuruṣa* is to be slightly differentiated from the other deity of the same name—the *Parivāra-devatā*, an auxiliary deity to Sadāśiva. Evidently, the Sadāśiva images in the *V.R.S.* are represented as sitting on a lion-throne (सिंहासन) mounted on an elephant. The lions are clearly parts of the throne. The Bull of Śiva appears in Sadāśiva Image, No. $\frac{C(b)1}{235}$ - and clearly four animals cannot be वाहन *Vāhanas* for the one and the same deity simultaneously.

not unlike that of *Vyākhyāna*. The image is figured as holding the breath in *Yōgic* contemplation, for the chest is inflated (बुद्ध पवन) and the body, erect and straight. See Plate 16, Fig. 1.

Next, in order of time, must be placed the Sadāśiva image No. $\frac{C(b)2}{180}$ which, however, is uninscribed. But, nevertheless, there are clear indications that the artist has partially freed himself from the Buddhistic associations and pre-dispositions disclosed in the previous image. Though the device of the elephant between lions is present and the first right hand is held above the first left hand in *Vyākhyāna* style, the fifth right hand is no longer touching the throne, though it still shows the *Varada-mudrā* almost in the *Bhūmisparśa* style. Some of Śiva's attendants with tridents and clubs are noticeable, on sides of the image, though the bull is still, probably, not shown. It is not certain if the indistinct figure at the left down corner of the pedestal represents the Bull. See Plate 15.

In the remaining Sadāśiva image (*V.R.S.*) No. $\frac{C(b)1}{235}$ which is inscribed, the complete *parapharnelia* of Śiva have appeared. Not only Śiva's attendants are armed with tridents and clubs, but similarly also the Vidyādhara's soaring through the skies carry arms. Two female images on two sides, as also the Bull are noticeable. See Plate 16, Fig. 2.

Certainly, the idea is that Śiva is sitting under a templet and that these female deities—the river-goddesses Gaṅgā and Yamunā, stand at the sides of the gate as *Dvāra-devatās*.¹ Sadāśiva's character as Bhairava² is no longer forgotten, for he is *Īrddhva-līṅga* अर्द्धलिङ्ग.

The artist seems to have completely freed himself from the trammels of Buddhistic associations betrayed by the sculptor of the oldest Sadāśiva image (950–1050 A.C.).

Such a process must have taken at least a century's time or even more. This exactly fits in with the time indicated by the Epigraph on the Sadāśiva image (*V.R.S.*) No. $\frac{C(b)1}{235}$, viz. the latter half of the 12th century A.C.

V.R.S. $\frac{C(b)3}{160}$ Sadāśiva—with ten hands and three faces, seated on double lotus throne; in black clay-chlorite stone; back-slab measuring 1' 9" × 10" from Khiratta, P.S. Tapan in Dt. Dinājpur. There is a votive inscription (on the pedestal) in one line. The faces and hands are greatly mutilated; the

¹ See Appendix V.

² See Appendix IV.

entire front face and the first right and left hands are entirely broken off. The weapons in hands are:—

R1—broken.

R2—probably *Śakti* (or, *Daṇḍa*, Club?).

R3—*Trisūla*, Trident.

R4—*Khaṭvāṅga*, Club with human skull.

R5—*Varada-mudrā*, exactly in the *Bhūmisparśa* style.

L1—entirely broken off.

L2—*Utpala*.

L3—*Damaru*.

L4—*Sarpa*, Snake.

L5—Broken.

The heads wear *Jaṭāmukūṭa*. A garland of disc-like pieces of human-bone (वस्त्रि-माला) hangs down the neck and reaches the throne. The left face is grim. The chest of the figure is inflated. A *tri-folio* arch rises above the head of the main image. The *Prabhāmandala* has the *Kīrttimukha* at the top middle. There is *Kalpalatā* decoration. Two celestials (*Vidyādhara*s) with offerings of flower-garlands, are hovering through the skies. There are no side figures, nor, the Bull. The inscription (see *supra*, p. 184) on the pedestal is—

यजमानवलीक[भ, न]यावुष्क्रि[भ, न]याकः।

yajamānavalika [bh*, n]yā-vuṣkri[bh*, n]yiyākaḥ.

The pedestal shows the device of elephant between lions, supporting the throne (*Siṃhāsanam*) among themselves. At the extreme left is the kneeling figure of the donor. At the extreme right is a flaming sacrificial vessel.

V.R.S. $\frac{C(b)^2}{180}$ Sadāśiva—similar to the previous one, from

Jaminkarai, P.S. Tapan, Dt. Dinājpur. A ten-armed three-faced sitting image in black chlorite stone; back-slab measuring 1' 9" × 10". In fair state of preservation with the exception of some hands which are mutilated; the right face is grim.

R1—very probably had *Abhaya-mudrā*—in *Vyākhyāna* style.

R2—probably *Śakti* (or *Daṇḍa*, Club?).

R3—*Trisūla*, Trident.

R4—*Aṅkuśa*, Goad.

R5—*Varada-mudrā*, closely resembling *Bhūmisparśa*.

L1—*Akṣa-mālā*. The first Left hand is held below the first Right hand in *Vyākhyāna* style.

L2—*Utpala*.

L3—*Damaru*.

L4—*Sarpa*, Snake.

L5—*Vijapūra* fruit (*Citra medica*).

A *tri-folio* arch rises above. There is no *Kalpalatā*. A *haṁsa* (on each side of the arch)—feeding upon lotus-stalks. A *Vidyādhara*—on each side, the celestial on the right side holds a

(Cāmara) fly-whisk, in his left hand and a lotus-bud in his right; while the other on the left of the main image holds a lotus-bud, in his right and a lotus with long stalk, in his left hand. A garland of disc-like pieces of human bone (वस्त्रि *nrasthi*) falls round the neck of the main image, and reaches the lotus throne. The main image—not *Ūrdhva-līnga*.

An attendant figure sits on either side with legs bent up. The one at the left has a snake in his right hand and a trident in his left; this is probably Nandī. The figure on the right holds a trident, and in his left hand is something like (a ball, or) the skull-cup, *Kapāla*. Probably the figure is that of (Skanda ~~कन्द~~ ? or) Kṣētrapāla.¹

The pedestal is divided into two portions. The upper part contains the familiar device of an elephant between two lions. At the extreme left is the skeleton figure of Bhṛīṅgin and at the extreme right is the pot-bellied Mahākāla, both with trident.²

The lower section has the figure of a standing *dvārapāla* on either side with a club (*daṇḍa*) at the extreme right and left, besides the kneeling figure of the donor at the right, and the (bull ?) at the left, and lotus-buds in the middle.

V.R.S.—^{C(b)1}
235 Sadāśiva—in black chlorite stone; measure-

ments like the previous ones; recovered from Shāhpur P.S. (Māndā) Niamatpur, Dt. Rājshāhi. With ten hands and three faces, one on either side and the other in front; seated upon a double lotus throne. In good state of preservation with exception of the nose of the front face and some fingers and weapons, which are broken away.

R1—The first right hand discloses *Vyākhyāna-mudrā* in *Abhaya* style.

R2—upper part of weapon missing; probably *Śakti* (or, *Daṇḍa*, Club ?).

R3—*Trisūla*, Trident.

R4—*Khaṭvāṅga*.

R5—presents the *Varada-mudrā* in nearly the *Bhūmi-sparśa* style.

L1—shows a Rosary (*Akṣa-mālā*) and is held below R1, in *Vyākhyāna* style.

L2—*Utpala*.

L3—*Damaru*.

L4—*Sarpa*.

L5—*Vijapūra* with its skin partly peeled off, from front.

On the right side of the main image, stands Gaṅgā on a *Makara* holding a flower bunch in the right hand and a vessel lifted up by the left. On the left is Yamunā on a *Kūrma*, Tortoise, with a flower bunch in her left hand and vessel—held

¹ See Appendix III.

² See *Ibid.*

up by the right. These two are evidently the *Dvāradēvatās*¹ of the temple under which Sadāśiva is sitting.

The pedestal contains the figure of the elephant between two lions, besides a small and indistinct kneeling figure of the donor; a small pot-bellied male figure, holding a trident—probably Mahākāla is on the right, and another figure, also with a trident—probably Nandin—on the left, both as guards. The figure has *Jaṭā-mukuta* on all the faces and a garland of (*Nrasthis*) disc-like human bones, reaching the throne. The Bull sits in front of the double lotus throne, looking forward to the world with compassion. Evidently Sadāśiva is here figured as being attended by his usual *Gaṇas*; and his aspect as a *Bhairava* is not forgotten, for the left face is grim and the figure is *Ūrdhva-līṅga*.²

In keeping with this character, the two celestials soaring to bring offerings to the deity are armed; the one on proper right has a lotus-bud in the left hand and a sword in right hand—the other is holding in left hand, a lotus-bud and a sword in right. There is no *Kalpātātā* but the *Kīrti-mukha* is existent on the *Prabhāmaṇḍala*. A tri-folio arch rises above the main image. The epigraph on the pedestal in one line runs—

दानपति तंवामंष Dānapati-taṁvāmaṁṣa

It is in the East Ind. script of the latter half of the 12th century A.C.

V.R.S. ^{C(b)}/₄₉₆ Sadāśiva,—Miniature in black chlorite stone.

From Sibpur (near Badal Pillar), Dt. Dinājpur. Ten handed. Partly broken at the top and the left down corner of the pedestal. Whole of *Prabhā-maṇḍala* and L2, holding probably the *nīlotpala* are missing—with a socket-hole for fixing (below the pedestal) instead of a wedge. Figure of a pot-bellied dwarf? at left side top. Device of elephant seated between lion on either side. The main figure (measuring seven inches) with the two natural hands in *Vyākhyāna-mudrā* is in excellent preservation and nicely sculptured. See Plate 14, Fig. 2.

‘A brass image of Sadāśiva, V.R.S. (No. 673; 4" × 2¾";’ from Sherpur, Dt. Bogra). The image is shown as having four faces instead of five which is required by the text. He is seated on a lotus and has ten hands. A bull is represented kneeling in front, on the pedestal. The distribution of attributes in the ten hands is as follows:—right hands, respectively from top to bottom, *śakti*, *triśūla*, *khaṭvāṅga*, *abhaya*, and *varada-mudrās*; left

1 कुम्भाजहस्ता चेताभा मकरे वापि जाह्नवी ।

कूर्मगा यमुना कुम्भकरा श्यामा च पूज्यते ॥

Agnī-purāṇam. Anandāśram Edition (1900), Chapter 50.

² Vide Appendix IV.

hands from top to bottom, *damaru*, serpent, some indistinct object, lotus and another indistinct object (*vijapūraka*?).¹

The statement regarding the faces of Sadāśiva, is however, inaccurate and might be due to misunderstanding; all faces are never shown.

Another little-known example of Sadāśiva, not properly identified, is also existent in America.²

'A Saiva sculpture in black state, of the Pala School of Bihar-Bengal-Orissa (figure 4) and perhaps of twelfth century date is of the type popularly known as Trimūrti, and because of its perfect preservation throws a valuable light upon the interpretation of other examples, particularly the well-known Trimūrti of Elephanta which was recognised by the late T. A. Gopinātha Rao as Śaiva and identified by him as a Maheśa-Mūrti. In the Pennsylvania figure the Śaiva character is clearly established by the third eye, cobra, sacred thread, *jatā-mukutas*, trident and drum attributes, and the Nandi, Kali and Gaṇas of the pedestal. Of the hands, the two normal hands (i.e. lower right and lower left) are respectively in *abhaya-hasta*, and holding a *rudrākṣa-mālā*; taking the other hands in the usual order the second right, on the right knee, is in *varada* pose, denoting charity; the third holds a spear (*śula*), the fourth a club (*daṇḍa*), the fifth the trident (*triśula*): the upper right hand the drum (*damaru* or *dhakkā*); the next, a blue lotus (*nīlotpala*); the next, a cobra; the fourth, apparently a fruit. The right and central faces are peaceful, the left *ugra*. The centre of the base has a Nandi; a dancing Kali, and two dancing Gaṇas. The *toraṇa*, crowned by a *kīrtti-mukha*, carries two *vidyādharas*. Of the three forms of Śiva, thus combined, the central figure is most likely Sadyojāta, two of whose hands should be held in *varada* and *abhaya* positions, while a third should have the *akṣa-mālā*: the proper left hand figure is evidently the Aghora aspect of Śiva, of fierce aspect and holding a cobra in one of his hands.'

The Image closely resembles the V.R.S. specimens, and as a continuity in sculptural style is traceable, it must therefore belong to the same school and also approximately to the same period.

¹ N. G. Majumdar: *A Note on the additions to the Museum during 1925-26*, p. 6—*Annual Report of the V.R.S. for 1925-26*, Rajshahi, April, 1926.

B. N. Sarkar: *Notes of a tour of exploration*, p. 5. 'A miniature bronze image of Sadāśiva was collected at Sherpur.' *Ibid*.

শ্রীহরগোপাল দাস কুণ্ড। শেরপুরের প্রাচীন মূর্তি—পরিশ্রয়। 'প্রবাসী' ১৩৩৩ জ্যৈষ্ঠ।

² Ananda Coomaraswamy: *Some Indian Sculptures in American Museums*. Mahesha-Mūrti, Bengal. About 12th century, 3' 3½". *Rūpam*, No. 18. Indian Soc. Oriental Art, Calcutta, p. 66. (The diacriticals are mine.)

The two Sadāśiva Images in the Vaṅgiya Sāhitya Pariṣad, Calcutta (both in black chlorite stone) are totally different in workmanship from the North Bengal Images. For while the three specimens in the Museum of V.R.S. are characterized by feminine grace, these two specimens are marked by masculine vigour and majesty. They must be later in age than the three specimens in the V.R.S., for the pedestal no longer shows the ornamental device of elephant between lions which belongs to Non-Brāhmanic Iconography. The exact findplaces of these two specimens are not mentioned,¹ but they too disclose such a remarkable degree of family likeness that the Artists must have belonged to the same school (or part of India), which school (or province) must also be, at the same time, remote from the school or country of the V.R.S. specimens. The V.R.S. specimens of Sadāśiva and the Vaṅgiya Sāhitya Pariṣad images represent two altogether different schools of sculpture; there have certainly been no borrowings between these two schools, for no such are traceable in these specimens, extant. Both these two sets of specimens are beautiful but the V.S.P. images are certainly the more powerful.

Varāhamihira speaks in his *Bṛhatsamhitā*, of an authentic *Śilpaśāstrakāra* Nagna-jit² none of whose works have survived in the originals.³ According to Nagnajit, as mentioned by Varāhamihira, the measurement for the facial length of an image in the Drāviḍa System should be fourteen *Āṅgulas*⁴ (while according to Varāhamihira the length and breadth of human face should be the same, i.e. twelve *Āṅgulas*).⁵ Certainly, the cheeks of these two specimens from the V.S.P. are more full than the V.R.S. examples. It is not impossible the first group were influenced by Drāviḍa Art Traditions. They probably belonged to West Bengal and never to North Bengal.⁶

Of the two specimens in black chlorite stone, in the V.S.P., the better preserved one is earlier, for the ornamentations of

¹ In the older *Catalogue of Exhibits*, Vaṅgiya Sāhitya Pariṣat.

² See also *infra*, p. 244, note 2.

³ Tibetan translation of a work (of the class—*Śilpavidyā-sūtra*) named *Citra-lakṣanam*. [Edited by Berthold Laufer]: *Dokumente der indischen Kunst. Erstes Heft: Malerei: Das Citra-lakṣaṇa*. Leipzig, 1913. The authorship of the work is ascribed to Nagnajit: it is included in *Bstan-hgyur*. Cordier: *Catalogue du Fonds tibétain de la Bibliothèque Nationale*. Mdo-hgrel CXXIII, No. 6.

⁴ H. Kern: *Bṛhat Samhitā*. 'Bibliotheca Indica', Chapter 58, ślōka 4.

खैरकुलप्रभाषेद्वादशविस्तीर्णमायनं च मुखं ।

नगजिता तु चतुर्दशद्विषेण द्राविडं कथितं ॥

⁵ Also *vide* Gopināth Rao: *Op. cit.* Vol. I, Part I, p. 58; O. C. Gangoly: *South Indian Bronzes*, p. 8.

⁶ This presumption, based on indirect proofs, has however been fortunately fully supported by facts. See—*The Catalogue of the V.S.P. Museum*.

the main images are simpler, there are no trifolio arch above—its place being still taken by a (horse-hoof?) curved pattern halo, also the *Kalpalatā* and other similar ornamental devices are not all shown on the back ground; the Image measures 32 inches in length by 15 inches in breadth and is three-faced and seated on double-lotus throne. See Plate 17.

The disposition of weapons in the hands are as follows :—

R1—*Abhayamudrā* resembling the *Vyākhyāna*.

R2—*Śakti* (*Danḍa*?).

R3—*Śūla*.

R4—*Aṅkuśa*.

R5—*Varadamudrā*.

L1—holding bead-string *Akṣasūtram* অক্ষসূত্রম্ and placed below R 1 to present the *Vyākhyāna-mudrā*.

L2—*Utpala*.

L3—*Damaru*.

L4—*Sarpa*.

L5—*Vijapūra*; (the skin on the upper half portion of the fruit is peeled off and the seeds are gathered together conically).

The three visible heads wear *Jaṭāmukuta*. There is an ornament, protruding from the *Kirīṭa* and resembling a hooded serpent, at the right as well as the left face. The latter (left) face is with moustache and beard tucked up in the usual *Bhairava* fashion; the eyes are round and the teeth prominent.¹ This is the Aghōra face.

There are two attendants seated upon their hams, in half *utkuṭākāvana* উকুটকাসন on lotus thrones. The one on the right is potbellied and with clotted hair locks, and holds the scull-cup *kapaḷa* and the trident *trishula* in his right and left hands respectively. The clotted locks of hair are standing erect and the figure is nude. This most probably is Kṣētrapāla. The other attendant on the left, holds the *Akṣasūtra* and *Śūla*, in the right and the left hands; he may be identified as Nandikeśvara.

There is *Kīrttimukha* at the top on the *Prabhāmaṇḍala*; the latter is a narrow fringe passing all around the image and consisting of graceful tendril-like curls. Two celestials on either side hover above with offerings of flower garlands. The pedestal shows the figure of the Bull looking towards his master besides a male and a female devotee on the left, and lotus buds on the middle of the pedestal.

The other Sadāśiva Image in the V.S.P., also in black chlorite stone undoubtedly belongs to a later age. The ornamentation is more elaborate, the back-ground is no longer bare; instead of under the simpler oval halo, the image is

¹ See Appendix IV. Śiva-Bhairava.

seated on double lotus throne under a *trifolio* arch; above—on either side is a *haṃsa*, feeding upon sweet lotus stalks; above, rise in graceful curls, *Kalpalatā* creepers on either side. The *Kirttimukha* appears at the top and two celestials hover above, bringing flower garlands. See Plate 18.

The image is sadly mutilated, many of the hands and weapons are totally broken off. Of the three faces, sculptured (all of which wear the *jaṭāmukuta* capped by a lotus bud) the right one is grim—with round eyes and beard, and moustache-tucked up in *Bhairava* fashion. This must be the Aghōra face.

Through the clotted hair locks of Sadāśiva's front face appears the face of Gaṅgā. The Image is bedecked with ornaments. A thin scarf passes under the right arm and over the left-shoulder. The *Nāgōparīta* is present, as also the *Nrasthimālā*—the garland of human bones, reaching down to the lotus throne.

(The Right First hand) R1—is totally broken off.

R2—weapon partly broken; *Śakti*
(or, *Daṇḍa*).

R3—*Trisūla*.

R4—*Khaṭvāṅga*; very distinct.

R5—*Varadamudrā* in the style of
Bhūmiśparśa.

L1—totally broken off.

L2—*Āyudha* broken off: the lotus
stalk is visible.

L3—weapon broken off; one end
of *Ḍamaru*, visible.

L4—*Sarpa*.

L5—totally broken off.

Two attendants seated on double lotus throne, in easy attitude (*ललितामन Lalitāsana*) with one leg drawn up,¹ are on the two sides of the main image. The right figure with the *Trisūla*, *Akṣamālā* and *Jaṭāmukuta*, *Nāgōparīta* is nude and with clotted beards—thus representing probably, Kṣetrapāla.

The figure on the left holds the *Akṣasūtra* and *Trisūla* and also wears the *Jaṭāmukuta*—thus probably representing Nandikeśvara. The pedestal contains at the extreme right, the figures of the donor—offering a garment, and his wife. At the extreme left, the dancing figures of the dwarfish and pot-bellied Mahākālā and the skeleton Bhriṅgin are visible. The figure of the Bull looking fondly towards his master is also noticeable. There are two lions evidently parts of the *Siṃhāsana*, but no elephant is represented.

Sadāśiva's aspects as *Bhairava* and as *Gaṅgādhara* are not forgotten. For the image has the *Khaṭvāṅga* and is अर्द्धलिङ्ग

¹ Cf. with the similar pose in *A.S.I.R.*, 1904-5 (Excavations at Sāmāth), the male figure (d) illustrated on plate XXXI.

Īrddhvalinga, and shows the face of Gaṅgā inside the clotted upper hair-locks.

All the available Sadāśiva images and figures are now dealt with. All these specimens bear striking and strange coincidence with the conception (*Dhyānaśloka*) of the Deity found in the *Garuḍapurāṇam* and in the *Uttara Kāmikāgama*, the oldest Śaivāgama extant. The latter is probably not older than the 5th or 6th century A.C.¹ Manuscripts of this unpublished work (from which quotations have been given by scholars² from time to time) have been noticed.³ This particular conception about the deity might be even earlier than the texts referred to.

When and how such forms of Sadāśiva came to be worshipped in Bengal is still unknown. These might have been introduced through the missionary zeal of religious enthusiasts.⁴

They might also have come in the van or wake of military expeditions by adventurers from the South. Or they might represent another possible phase of the slow infiltration of Śaivāgamic doctrines into the Tāntrik forms of worship current in Bengal.⁵

¹ Vide Gopinatha Rao : *Op. Cit.* Vol. I, Part I, p. 55.

² Quoted by Hēnādri : *Op. Cit.* Danakhandā. See Aufrecht's *Catalogus Catalogorum*.

³ In *Madras Oriental MSS. Library-Catalogue*, Vol. XI. Systems of Indian Philosophy. 2. Saivism.—No. 5431 कश्चिदागमः contains *Paṭalas* 1-116 and 136; 'deals with the worship of Śiva and with the performance of the various religious festivals in Śaiva temples'.

No. 5432—From *Jīrṇōddhāra* to *Aṣṭa-bandhana*. The latter portion of the work described under No. 5431. Also, see Appendix VI.

⁴ It may be noted in this connection, that long before the Muhammadan conquest of Bengal took place, Moslem Darwishes, Auliyās, and Faqirs penetrated into the province for preaching Islam.

[Shaikh Burhān-uddīn and Shah Jalāl Miyarrīd Yamnī of Sylhet, vide *J.A.S.B.* (1873), Part I, pp. 278-81. According to the tradition recorded in the Muhammadan work, *Suhail-i-Yaman*, Sylhet or Śrī-haṭṭa was conquered by Pīr Shah Jalāl from Gaur Govinda, the last Hindu King.

The so-called dated coin of Gura Govinda (for such was supposed to be real name) of Śaka 140(?)2, corresponding to 1480 A.C. (Vide *J.P.A.S.B.*, Vol. XVI, 1920, No. 3, Numismatic Supplement, No. XXXIII), has been found to be one of Govinda Manikya of Tippera, dated in the Śaka year 1581. Also the conquest of Sylhet was accomplished in 703 H.=1303 A.C. (*J.P.A.S.B.*, Vol. XIX (1923). Num. Suppl., No. XXXVII, Notes on the coinage of Tippera, Nos. 48-49).

Khānjāhān Ali—Vide অধ্যাপক শ্রীশতীশচন্দ্র মিত্র প্রণীত, যশোহর খুলনার ইতিহাস - Prof. S. C. Mitra, The History of Jessore-Khulna. Vol. I, Part 2, chapter 3.

Hazrat Shah Jalāl Tabrizī of Panḍuā—Vide Shaikh-Subhōdayā, শেখ-সুভদয়া (published partly in Kāyastha-Patrikā কাষষ্ঠ-পত্রিকা). Complete Edition with English Notes by Sukumār Sēn : *Grishikesha Series*, Calcutta, 1927; also vide *J.A.S.B.* (1873), Part I, p. 260.

⁵ With this process of mutual influence of contemporary Religious (and Philosophical) systems might be compared the remarkable mixture of Tāntricism with Vaiṣṇavism that took place in its later phases, e.g. as in the *Rādhā Tantram* and the *Rādhikā-vilāsa Tantram*.

But, as shown before, Sadāśiva Worship as a distinct religious creed enjoyed a brief but vigorous life, from a period not later than the 9th century A.C. and extending up to the 14th century A.C.¹

The Sadāśiva Worship spread over a vast expanse of territory from Benares to Bhuvanēśvara—and from South-West India to the furthest North Bengal and it could claim to have at least, one royal line among its worshippers.

The worship of Sadāśiva is still extant in Bengal, though its votaries are now extremely rare.

¹ *Vide* dates of the extant Sadāśiva Images described.

APPENDIX I.

सदाशिव-ध्यानानि SADĀ-ŚIVA-DHYĀNAS.

Whatever might be the exact causes, the Dhyāna Ślōka of Sadāsiva, found in the *Rudrayāmala*, *Paṭala* 48 and quoted in the *Tāntrik Nibandhas*, e.g. *Śāradā-tilakam*, *Paṭala* 18 and *Tantrasāra*, has not been handed down in a perfect state of preservation. The date of Lakshmaṇa Deśika, the compiler of *Śāradā-tilakam*, is put in the 10th century. But even in the time of Gadādhara, the earliest commentator referred to (on *Śāradā-tilakam*) who flourished about the middle of the 15th century A.C., different readings had already crept in the *Dhyāna ślōka* in question. The Manuscript of *Tantra-pradīpa* by Gadādhara, in the V.R.S., is dated 1493 Śaka शक=1571 A.C. It may be therefore regarded as reliable.

The different readings in the Dhyāna Ślōka are noted below.

Tantrapradīpa :—(V.R.S., MS. No 547. Dated *Saka* 1493).

मुक्तापीतपयोदमौक्तिकजपावज्ञैर्मुखैः पञ्चभिः (?)

स्थत्तैरश्चितमौशमिन्दुमुकुटं पृष्णन्दकाभिप्रभं ।

(?) शूलं टङ्कणपाणवच्चदहनाग्नेन्द्रचंटाङ्गुशान्

पाशाभौतिकरन्दधानममिताकल्पोज्वलं चिन्तयेत् ॥

श्रीधीरसिंहात्मज-राघवेन्द्रतनुप्रसूतस्य गदाधरस्य ।

अष्टादशोऽयं समपूरितन्त्रप्रदीपे विमलप्रकाशः ॥

गूढार्थदीपिका । श्रीमहामहोपाध्याय रामसंप्रदायप्रवर्तक-
श्रीमन्माधवभट्टविरचिता शारदाटीका *Gūḍhārthadīpikā*. Litho-
graphed at Benares : *Paṭala* 18.

मुक्ता- ... -जपावज्ञैर्मुखैः पञ्चभि-

स्थत्तैरश्चितमौश- ।

शूलटङ्क- अग्नेन्द्रचंटाङ्गुशान्

पाशं भौतिवरं दधानममिताकल्पोज्वलं चिन्तयेत् ॥

Commentary *Gūḍhārthadīpikā* :—

[टङ्गं ?] परशुः कृपाणः खङ्गः । दहन[]

शान्तमुखवद्भिः । स्पष्टार्थमपरं ।

The commentator Kālicaraṇa quotes ¹

शूलं टङ्ग-कृपाणवच्च पाशाभीति-हरं

... .. कल्पोज्ज्वलाङ्गं भजे ।

Some *Tantrasāra* MSS.—(one of them dated 1708 Śaka) read :—

शूलं पाशं भीतिहरं ॥

Printed *Tantra-sāra* (Basumatī 5th Edition), p. 168 :—

पाशं भीतिवरं दधानम०— ॥

Rudrayāmala :—MSS. (V.R.S. Nos. 235 and 214.) Paṭala 48.

पाशं भीतिहरं ॥

Ditto.—Printed (Ed. Rasikmōhan) Paṭala 50.

शूलं टङ्गं कृपाण ॥

पाशाभीतिवरं ॥

Ditto.—Printed (Ed. Jivānanda Vidyasāgara).

शूलं टङ्ग— ॥

पाशं भीतिहरं दधानमसिता ॥

The oldest *Śāradātīlakam* MS. (V.R.S. MS. No. 505. Find-place Dayārāmpur, district Rājshāhi. Dated Śaka 1491)—

मुक्तापीतपयोध(?)मौक्तिकय(?)वावसै(?) मुखैः पञ्चभि-
स्त्रक्षैरक्षितमौशमिन्दुमुकुटं प(?)स्येन्दुकोटिप्रभं ।

शूलं टङ्गकृपाणवच्चदहनाग्नेन्द्रघण्टाङ्गुष्ठान्

पाशं भीतिहरं दधानममिताकल्पोज्ज्वलं चिन्तये ॥

Printed *Śāradātīlakam*, 18th Paṭala.²

मुक्तापीतपयोदमौक्तिकजपावणमुखैः ...

... .. ॥

शूलं टङ्ग- ॥

पाशं भीतिवरं चिन्तयेत् ॥ ८६ ॥

¹ Vide A. Avalon: *षट्चक्रनिरूपणम् Tāntrik Texts*, Vol. II. 41ōka 29.

² Ed. with Rāghava Bhaṭṭa's Padārthā darśa पदार्थादर्श (Sam s 1953).
Printed from Rājārājesvarī Press, Benares. Full of printing mistakes.

पदार्थादर्शः—

मुक्तेति । मुक्तावर्णमूर्ध्वमुखम् ।

पीतवर्णं पूर्वमुखं नीलवर्णं दक्षिणमुखं मुक्तावर्णं पश्चिममुखं
विद्रुमवर्णमुत्तरमुखं । पयो ददातीति व्युत्पत्त्या नीलमेव एव विवक्षितः ।

तदुक्तं वायव्य-संहितायां ।

अस्य पूर्वमुखं सौम्यं बालार्कसदृशप्रभं ।

त्रिलोचनारविंदाक्षं बालेन्दुकृतशेखरम् ।

दक्षिणं नीलग्रीभूतसमानं चंद्रभूषितं ।

वक्रभ्रूकुटिलं घोरं रक्तवृत्तत्रिलोचनम् ।

उत्तरं विद्रुमप्रख्यं नीलालकविभूषितम् ।

सविलासं त्रिनयनं चंद्राभरणशेखरम् ।

पश्चिमं पूर्णचंद्राभं लोचनत्रितयोज्ज्वलं ।

चंद्ररेखाधरं सौम्यं मंदस्मितमनोहरम् ।

पंचमं स्फटिकप्रख्यं चंद्ररेखासमुज्ज्वलम् ।

अतीवसौम्यमुत्फुल्ललोचनत्रितयोज्ज्वलमिति ।

इंदुमुकुटमिति वक्तुं श्रेयं । टंकः परशुः । नागेशः सर्पेशः । भौतिहरं
अभयं । आयुधध्यानं तु ऊर्ध्वादिदक्षशूलाद्यग्न्यन्तानि वामे अन्त्यानि ।

तदुक्तं वायव्यसंहितायां । दक्षिणे शूलपरशुवज्रखड्गानलोज्ज्वलं
सथे च नागेशाभौतिघंटापाशांकुशोज्ज्वलमिति ॥

अन्यत्र ऊर्ध्वदक्षवामयोराद्य एवमांतमितिक्रमेणोक्तं । शूलाह्नीटङ्क-
घंटासिंहगि(ण्यं)कुशपाशाग्न्यभौतीर्द्धानं दोर्भिरिति । अन्यत्र व्यत्ययो-
प्युक्तः । यदाहुः । भुजङ्गघंटाभयदांकुशांश्च पाशं भजैर्दक्षिणतो दधानं ।
तथा त्रिशूलं परशुं च खड्गं वज्रं च वज्रं क्रमशो परैरेति । अन्यत्र
एकवक्त्रं चतुर्भुजं च ध्यानमुक्तं । अथ चैकवक्त्रं । दोर्भिश्चतुर्भिर्युतमिन्दुमौलिं ।
धृताक्षमालात्रिशुखं क्रमात्तं, यजेत् सखट्ठांगकपालहस्तमिति । अन्यत्र तु
देवं नमामि शिरसा परशुं त्रिशूलं, विद्या-कपालपरिमंडितबाहुखंडमिति ।

Some of these readings indicated above are clearly wrong as they violate metre and give no good sense. It is unthinkable that the construction of an important Dhyāna Śloka could have been originally so faulty.

The more so, when we compare and contrast it with other similar Dhyānas. Far from being works of mediocre merit, some of those rank with the best specimens of Sanskrit poetry. For example, compare the dhyāna of Śoḍaśī षोडशी, one of the ten महाविद्या Mahāvidyās, conceived as a fair and fully bedecked damsel in the fulness of youth.¹

In the following restoration of the Dhyāna-ślōka and in the interpretations proposed, the text has not been altered and the metre is not disturbed.

(a) सुक्तापीतपयोदमौक्तिकजवा(पा)वर्णैर्मुखैः पञ्चभि-

स्त्यक्षैरक्षितमौशमिन्दुमुकुटं पूर्णेन्दुकोटिप्रभं

शूलं टङ्ककपाण-वच्च-दहना = भागेन्द्र-घण्टाऽङ्कशान्

पाशाभौति-वरं दधानममिताकल्पोज्ज्वलाङ्गं भजे ॥

० कल्पोज्ज्वलं चिन्तये ॥

Pāśam, Abhītiśca, Varāṇca, पाश अभीतिश्च वरञ्च—all these being indicated by gestures (मुद्रा) Mudrās, i.e. all these components being parts of the body there is *Drandaikavad-bhāvaḥ* (प्राण्यङ्गत्वात् इन्द्रैकवद्भावः), and the compound is in neuter singular.

Śiva carries in his ten hands, ten weapons आयुध *Ayudha*-s and He also carries the serpent-lord (नागेन्द्र) on his body, as *upavīta* उपवीत.

(b) The last two lines may also be construed as follows without violating the metre, or the sense to any extent.

शूलं टङ्क-कपाण-वच्च-दहना = भागेन्द्रपाशाऽङ्कशान्

घण्टाभौतिवरान् दधानममिताकल्पोज्ज्वलाङ्गं भजे ॥

Though पाश can be more logically associated with नागेन्द्र, the position of घण्टा is disturbed. The *Dvandvaika-vadbhāvaḥ* is also not possible.

Of these Texts, the palm-leaf MS. of the *Tantrapradīpa* is the oldest; but it also gives the greatest number of different readings.² The original Nibandha *Śāradā-tilakam*, of which it

¹ See *Vāmakeśvara Tantram*.—*Nityaśoḍaśikārnava*. (Ānandāśram, Poona.) *Viśrāma* I, śloka 138-60.

² The final colophon to the *Tantrapradīpa* MS. in the V.R.S (No. 547, obtained from Puthiā, Dt. Rājshāhi), runs as follows:—

प्राभृद्भुदेवराजो जितरिपुल्यपतिर्दय(र्य)-नारायणात्म्य
तस्यापि द्वौ तनु(नू)जौ हरिहरविभवौ रामशौ(सौ)मित्रमित्रे ।

तत्र श्रीधीरमिह[ः] हतमदन- * * * * [क]नीयान्
पारीन्दी येन सद्योद्रुतविपुलमदीन्द्रावि दण्डा(म्मा?)वलेन्द्रः ॥[१॥]

is a commentary is separated (from it) by a period of less than (4) four centuries.¹

Whatever might be the exact causes leading to these different readings—they might be instances of real mistakes

‘R. Mitra: *Notices*, VI, 233, No. 2172 reads.—

—मदी द्रावितो रावणेन्द्रः (वारणेन्द्रः !) ॥’

श्रीधीरसिंहप्रहलितस्तनु(नू ?)जः श्रीराघवेन्द्र-सुरपादपोभूत ।

यदङ्कमेत्यावि(रि) * * लक्ष्मी-महासुराणां विलये व्यपासीत् ॥[१॥]

प्राक् प्रत्य * वसीम्ययाम्यप्रणताव * * * * -माणा

वाल्लादित्यप्रकाशस्मितचरण-मरोजन्म-विश्रान्तकान्तिः ।

भूपः श्रीरामभद्रो धरणिः(णि)-सुरतरु-भैरवेन्द्रात्मजन्मा

ज्योतीमेतामिदानीं चतुर्बदधि[प]यःपूरसीमां प्रशान्ति ॥[१॥]

श्रीराघवेन्द्रप्रभवः प्रभावी गदाधरो नाम कुमारराजः ।

[श्री]-शारदायामिलकप्रकाशं तन्त्रप्रदीपं समपूरि धीरः ॥[४॥]

श्रीधीरसिंहात्मजराघवेन्द्रतनूप्रसूतस्य गदाधरस्य ।

तन्त्रप्रदीपे समपूरि पञ्चविंशप्रकाशो भुवनप्रकाशः ॥[५॥]

श्रीः ॥ १५ ॥ श्रीः ॥ श्रीं नमो गणपतये ॥ शुभमस्तु ॥ शकाब्दा ॥ १४९३ ॥ श्रीः ॥
श्रीं नमो भगवते वासुदेवाय ॥

Śaka 1493 corresponds to 1571 A.C. The MS. of *Tantrapradīpa*, in the *V.R.S.*, is therefore, about three centuries and a half old.

¹ Dhīrasimhadēva surnamed Hridaya-Nārāyaṇa, belonged to the ruling family of Mithilā. One authentic date exists for Dhīrasimha's rule. He was still living in L.S. लक्ष्मण संवत्सर 321, A.C. 1438. Mr. M. Chakravartī (*J.P. 4.S.B.*, 1915, pp. 425-26, Note) says that MM. Haraprasād Sāstrī found a manuscript written in the reign of Dhīrasimha in the year 321 of Lakṣmana-Sēna Dēva. But the MS. is not traceable and the *Viruḍa* (Kamsa-Nārāyaṇa) given there is probably wrong. But L.S. 321 cannot be 1438.

Mr. K. P. Jayaswal purchased a MS. of the *Karnaparvan* of the *Mahābhārata*, brought from Dt. Darbhanga. It is dated 327 ‘La. Sam.’, i.e. Lakṣmana-Sēna Era, Bhādra Sudi, 10, Sunday (the 20th August, 1447 A.C.), in the colophon—when was ruling Mahārājādhirāja Śrīmān (the illustrious) Hridaya-Nārāyaṇa —K. P. Jayaswal: *Hridaya-Nārāyaṇa of Mithilā*, *J.B.O.R.S.*, Vol. X (1924), pp 47-8. Dhīrasimha's successor was his younger brother Bhairava Simha, whose विरुद *Viruḍa*-s were Rūpa-Nārāyaṇa and Hari-Nārāyaṇa. During the rule of Bhairava Simha's son and successor Rāmabhadra also with the *Viruḍa* (Rūpa-Nārāyaṇa), Gadādhara composed his commentary.

Two dated manuscripts copied at the instances of this Prince Gadādhara, exist—viz. a MS. copy of Bhōjadeva's Vividha-vidyā-vicāra-catura विविध-विद्या-विचार-चतुर, dated Friday, Śrāvana vadi. 1, आषाढ वदि. १ of La. Sam. 372; also a MS. copy of the *Dānakūṇḍa* of the *Kṛtya-Kalpataru*, dated Śaka 1426 and La. Sam. 374, Kārttika शुक्ल 5, Wednesday; both the MSS.—written by the same copyist Śubhapati शुभषति. Gadādhara was therefore living in 1489-93 A.C. [vide *J.P.A.S.B.*, Vol. XI (1915), pp. 424-30; and vide श्रीब्राह्मणस्य बन्धोपाध्याय—बाबुलाल इतिहास, Mr. R. D. Banerjee—History of Bengal, Vol. II, pp. 200-4].

being perpetuated by the thoughtlessness of subsequent scribes, the conclusion is probable that the Worship of Sadāśiva, described in the Śākta Tantras, was already falling out of popular favour, as early as the 14-15th centuries.

During Āgamavāgiśa Kṛishṇānanda's time (a contemporary of Caitanya, born 1485 A.C.) the worship was nearly forgotten, and it has almost totally disappeared now.

APPENDIX II.

शिवरूपवर्णनानि DESCRIPTIONS OF ŚIVA.

1.

... .. शृङ्ग रूपं पिणाकिनः ॥ १३ ॥
 देवदेवं महादेवं वृषारूढं तु कारयेत् ।
 तस्य वक्त्राणि कार्याणि पञ्च यादवनन्दन ॥ १४ ॥
 सर्वाणि सौम्यरूपाणि दक्षिणं विकटं मुखम् ।
 कपालमालिनं भीमं जगत्संहारकारकम् ॥ १५ ॥
 त्रिनेत्राणि च सर्वाणि वदनं ह्युत्तरं विना ।
 जटाकलापे महति तस्य चन्द्रकला भवेत् ॥ १६ ॥
 तस्योपरिष्ठाद्वदनं पञ्चमं तु विधीयते ।
 यज्ञोपवीतं च तथा वासुकिं तस्य कारयेत् ॥ १७ ॥
 दशवाजस्तथा कार्यो देवदेवो महेश्वरः ।
 अक्षमालां त्रिशूलं च शरदण्डमथोत्पलं ॥ १८ ॥
 तस्य दक्षिणहस्तेषु कर्तव्यानि महाभुज ।
 वामेषु मातुलिङ्गं च चापादशरौ कमण्डलुम् ॥ १९ ॥
 तथा चर्म च कर्तव्यं देवदेवस्य शूलिनः ।
 वर्णास्तथास्य कर्तव्याश्चन्द्रांशु-सदृशप्रभाः ॥ २० ॥

(वर्णस्तथास्य कर्तव्यश्चन्द्रांशुसदृशप्रभः ॥ २०९—प्रतिमालक्षणे पाठान्तरम्)¹

—श्रीविष्णुधर्मोत्तरे तृतीयखण्डे मार्कण्डेय-वचनवादे त्रिमूर्ति-
 निर्माणां नाम चतुस्त्वारिंशत्तमोऽध्यायः ॥²

¹ See also प्रतिमालक्षणनिरूपनाध्यायः ८६६—७९ ॥

(Śrī-Veṅkateśvara Press).

See also हेमाद्रिः—व्रतखण्डम् १४ अध्यायः । (Bibliotheca Indica).

² *Viṣṇudharmottaram* is traditionally said to be part of the *Garuda-Purāṇam*. Alberuni made a thorough study of it. Regarding its date, see श्रीविष्णुधर्मोत्तरम् । १४—१५ खण्डम् ॥ (Śrī-Veṅkateśvara Press); Dr. M. Winternitz: *Geschichte der indischen Literatur*, Vol. I, p. 480. See also Dr. St. Kramrisch: *Viṣṇudharmottaram*, Part III; Engl. Transl.; *Painting* Chapters only, with Introd, etc., *J. Dept. Letters*, Cal. Univ., Vol. XI, 1924.

2.

॥ २ ॥ मार्कण्डेय उवाच ॥

सद्योजातं वामदेवमघोरं च महाभुज ।

तथा तं (तत्)पुरुषं ज्ञेयमौशनं पञ्चमं मुखम् ॥ १ ॥

सद्योजातं मही प्रोक्ता वामदेवं तथा जलं ।

तेजस्वधोरं विद्यात्तं वायुस्तत्पुरुषं मतम् ॥ २ ॥

ईशाने च तथाकाशमूर्द्धस्थं पञ्चमं मुखम् ।

विभागेनाथ वक्ष्यामि शम्भोर्वदनपञ्चकम् ॥ ३ ॥

महादेवमुखं ज्ञेयं पूर्वं शम्भोर्महात्मनः ।

नेत्राणि त्रीणि तस्याङ्गं सोमसूर्यऊताशनाः ॥ ४ ॥

दक्षिणं तु मुखं रौद्रं भैरवं तत्प्रकीर्तितम् ।

पश्चिमं यन्मुखं तस्य नन्दिवक्त्रं तदुच्यते ॥ ५ ॥

उमावक्त्रं च विज्ञेयम् तस्य देवस्य चोत्तरम् ।

सदाशिवमुखं विज्ञेयं पावनं तस्य पञ्चमम् ॥ ६ ॥

त्रिलोचनानि सर्वाणि वामदेवं द्विलोचनम् ।

महादेवमुखं भूमिस्ततः स्याद्भैरवं मुखं ॥ ७ ॥

नन्दिवक्त्रं तथा वायु(यू-)रौद्रेयं चाप उच्यते ।

सदाशिवमुखं ज्ञेयमाकाशं यदुनन्दन ॥ ८ ॥

दिशो दशभुजास्तस्य विज्ञेयं वदनं प्रति ।

महादेवकरे ज्ञेया(यो?) त्वक्षमालाकमण्डलू ॥ ९ ॥

सदाशिवमुखे ज्ञेयो चापवाणौ महाभुज ।

माहेश्वरं ततश्चापं पिणाकमिति शब्दितम् ॥ १० ॥

तेषां तु पूर्वमेवोक्तं व्याख्यानं शिपुसूदन ।

दण्डश्च मातुलुङ्गश्च करयोर्भैरवस्य तु ॥ ११ ॥

मृत्युदण्डौ विनिर्दिष्टौ मातुलुङ्गस्तथा करे ।

जगद्बीजस्य सर्वस्य ये राजन्यरमाणावः ॥ १२ ॥

तैः पूर्णं बीजरत्नं तु भैरवस्य करे स्मृतम् ।

चर्मशूले करे ज्ञेये नन्दिनो यदुनन्दन ॥ १३ ॥

पूर्वमेव च ते प्रोक्तं धर्मव्याकरणं मया ।
 त्रिभूलदण्डमव्यक्तं भूलेषु व्यक्ततां गतम् ॥ १४ ॥
 सत्त्वं रजस्तमश्चैव विज्ञातव्यं नृपोत्तम ।
 दर्पणेन्द्रीवरे ज्ञेये तथा देव्याः करद्वये ॥ १५ ॥
 आदर्शं निर्मलं ज्ञानं वैराग्यं च तथोत्पलं ।
 महादेवस्य देवस्य व्याख्याता ब्राह्मणा जटाः ॥ १६ ॥
 ऐश्वर्यं तु कला चान्द्रौ मूर्ध्नि शुम्भोः प्रकीर्तिता ।
 त्रैलोक्यशमनः क्रोधो वासुकिर्नामतः स्मृतः ॥ १७ ॥
 ढष्णा विशाला चित्रा च व्याघ्रचर्म प्रकीर्तितम् ।
 वृषो हि भगवान्धर्मस्त्रुपादः प्रकीर्तितः ॥ १८ ॥
 जगदुत्पादकं वस्तु प्रकृतिः सा प्रकीर्तिता ।
 शुक्ला च प्रकृति सर्वा तेन शुक्लो महेश्वरः ॥ १९ ॥
 एतद्धि तस्याप्रतिमस्य रूपं तवेरितं सर्वजगन्मयस्य ।
 एवं शरीरेण जगत्समग्रं स धारयत्येव जगत्प्रधानः ॥ २० ॥
 श्रीविष्णुधर्मोत्तरे ढतीयखण्डे मार्कण्डेय-वच-संवादे
 महादेवरूपनिर्माणो नाम ४८ अष्टाक्षत्वारिंशत्तमोऽध्यायः ॥

2 (a).

आप एव जगत् सर्वं स्थावरं जङ्गमं तथा ॥ ९ ॥
 तास्य धारयते ब्रह्मा तेन हस्ते कमण्डलुः ।
 अक्षमाला विनिर्दिष्टा कालस्तु ब्रह्मणः करे ॥ १० ॥
 कलनात् सर्वभूतानां काल इत्यभिधीयते ।
 श्रीविष्णु० ढतीयखण्डे मा० व० स० ब्रह्मरूपनिर्माणो नाम
 ४६ अध्यायः ॥

2 (b).

प्रद्युम्नस्य करे वज्रेः शार्ङ्गं चापं च यत् स्मृतम् ॥ १५ ॥
 ध्येयं तु परमं लक्ष्यं ताभ्यां छिन्दन्ति योगिनः ।
 ब्रह्मणस्त्वनिष्टस्य करे चर्म महाभुज ॥ १६ ॥
 अज्ञानावरणं ज्ञेयं जगत्सृष्टिप्रयोजनम् ।
 श्रीविष्णुधर्मोत्तरे इय खण्डे ४७ अध्यायः ॥

3 (a).

ईशानादयः । पुराणोक्ताः ॥

ईशस्तत्पुरुषाघोरा वामजातक्रमेण तु ।

सित-पीत-कृष्ण-रक्ताश्चतुर्वर्णाः प्रकीर्त्तिताः ॥

पञ्चवक्त्रास्मृतास्सर्वे दशदोर्दण्डभूषिताः ।

खड्गखेटधनुर्वीणाकमण्डल्यक्षसूत्रिणः ॥

वराभयकरोपेताग्रशूलपङ्कजपाणयः । (॥ श्री विष्णुधर्मोत्तरे ॥)

ईशस्तत्पुरुषाघोरा वामो जातक्रमेण तु ॥ ॥ वामो
वामदेवः ॥ जातः सद्योजातः ईशानादिपञ्चमूर्तयः ॥ (प्रतिमालक्षणो
तद्भागवतानं ८७३—८७५ ॥)

3 (b).

सदाशिवस्य पञ्चावरणानि, ईशानादयः ॥ तन्त्रोक्ताः ॥

शारदातिलके ॥ १८५ पटले ६२—

शक्तिं डमरुकाभीतिवरान्दधतं करैः ।

ईशानं त्रीक्ष्णं शुभ्रमैशान्यां दिशि पूजयेत् ॥ ६२ ॥

परश्वेणवराभीतीर्दधानं विद्यदुज्ज्वलम् ।

चतुर्मुखं तत्पुरुषं त्रिनेत्रं पूर्वतोऽर्चयेत् ॥

अक्षस्रजं मृगपाशौ हृदि डमरुकं ततः ।

खट्वाङ्गं निशितं शूलं कपालं बिभ्रतं करैः ॥

अञ्जनाभं चतुर्वक्त्रं भीमदंष्ट्रं भयावहम् ।

अघोरं त्रीक्ष्णं याम्ये पूजयेन्मन्त्रवित्तमः ॥

कुङ्कुमाभं चतुर्वक्त्रं वामदेवं त्रिलोचनम् ।

वराभयाक्षवल्यकुठारं दधतं करैः ॥

विलासिनं स्मेरवक्त्रं सौम्ये सम्यक्प्रमर्चयेत् ।

कर्पूरेन्दुनिभं सौम्यं सद्योजातं त्रिलोचनम् ॥

हरिणाक्षगुणाभीतिर्वरहस्तं चतुर्मुखम् ।

बालेन्दुशेखरोक्तासिमुकुटं पश्चिमे यजेत् ॥

(पदार्थादर्शः *Padārthādarśa*)—Commentary of Rāghava Bhaṭṭa on the above :—

पूर्वत इत्यादि दिग्गुह्यं ग्रन्थकृता प्रसिद्धदिशामेव कृतमिति ज्ञेयं ।
मन्त्रवित्तमः सम्यक् समर्चयेदित्यनेनेशादीनां न्यासोक्तबीजादित्वेन
पूजयेदित्युक्तं भवति ।

(तन्त्रप्रदीपः *Tantrapradīpa*)—Commentary of Gadādhara on the above :—

शक्तिरित्यादि देशकोणे शक्तिडमरुकाभौतिकरं त्रैलोक्यं शुभ्र-
मौशानं पुरतः परस्वेनपराभौतिकरं(?) विद्मामां चतुर्भुजं त्रिनेत्रं तत्-
पुरुषं याम्ये अक्षमालावेदपाशशूलिडमरुखट्वादिशूलकपालकरमञ्जनाभं
भौमदंष्ट्रत्रिनयन[म]घोरं सौम्ये कुङ्कुमाभं चतुर्मुखं त्रिलोचनं वराभयाक्ष-
मालाकुठारकरं स्नेहवक्त्रं विलासिनं वामदेवं पश्चिमे कर्पूरेन्दुनिभं सौम्यं
त्रिनयनं हरिणाभौतिवराक्षकरं चतुर्मुखं चन्द्रशेखरं सद्योजातं पूजयेत् ॥

Of these five Avarana-dēvatās (auxiliary deities) of Sadāśiva mentioned in the Tantras, Aghōra seems to be ten-handed, while Isāna, Tatpuruṣa, Vāmadeva, and Sadyōjāta are four-handed.¹

4 (a).

वामकेश्वरतन्त्रान्तर्गत-नित्यघोडशिकार्यावः ॥ (Ānandāśram, Poona.)

इच्छाशक्तिमयं पाशमङ्कुशं ज्ञानरूपिणम् ।

क्रियाशक्तिमये बाणधनुषी दधदज्ज्वलम् ॥ ५३ ॥ षष्ठविश्रामः ॥

(*Setubandha* सेतुबन्ध)—Bhāskararāya's Commentary on the above :—

इच्छाया एवाऽऽशाढ्यादिपर्यायत्वेन बन्धसाधनत्वात् पाशरूपता ।

तदुक्तमभियुक्तैः—आशा नाम ऋणां काचिदाश्चर्यमयशृङ्खला ।

यया बद्धाः प्रधावन्ति मुक्तास्तिष्ठन्ति पङ्कवत् ॥ इति ।

¹ Of the two printed editions of *Sāradātīlakaṃ* from Benares, that with Rāghava-Bhaṭṭa's commentary—totally misplaces the different stanzas of the Aghōra-Dhyāna चघोरध्यान, while the edition with Mādhava-Bhaṭṭa's commentary—totally omits a few stanzas. The complete Dhyāna-śloka for Aghōra were found from a comparison with Gadādhara's commentary on the portion; that portion of the commentary in the MS. again, is full of spelling mistakes. A. Avalon's New Ed., *Tāntrik Texts* has given correctly the Dhyāna-śloka in question.

ज्ञानं विषयाच्चित्तस्य निवारकत्वादङ्गुशस्तन्निवारणं च विषयवैराग्यं
विना न संभवति । तच्च द्वेष एव । विरक्तिर्विषयद्वेष इति वचनात् ।
तेन यत् पूर्वपटलान्ते—

पाशाङ्गुशौ तदौयौ तु रागद्वेषात्मकौ स्मृतौ ।

शब्दस्पर्शादयो बाणा मनस्तस्याभवद्गुणः ॥ इत्युक्तं

तदविरुद्धं । बाणधनुषोः संयोजनक्रियायाः शब्दादिविषयमनो-
योगरूपक्रियायाश्चैकरूपत्वान्न पूर्वोक्तरोक्तवासनयोर्विरोधः ॥ ५३ ॥

4 (b).

पाशाङ्गुशौ तदौयौ तु रागद्वेषात्मकौ स्मृतौ ॥ ४१ ॥

शब्दस्पर्शादयो बाणा मनस्तस्याभवद्गुणः ।

विश्वप्रतीतिजनिकाः शक्तयश्च क्रमेण याः ॥ ४२ ॥ ५मविश्रामः ॥

Bhāskararāya's Commentary :—

षट्त्रिंशत्तत्त्वेषु रागात्मकं तत्त्वं पाशस्य सूक्ष्मं रूपम् । बन्धकत्वा-
विशेषात् । अङ्गुशस्य वासनात्मकं रूपं द्वेषः क्रोधः । द्वेषाद्वारकत्वात् ।
यत्तत्तत्पटलेऽङ्गुशस्य ज्ञानरूपत्वं वक्ष्यते तद्विरोधस्तत्रैव परिहरिष्यते ।
शब्दस्पर्शादय इत्यादिपदेन रूपरसगन्धाः । एते पञ्चतत्त्वात्मका विषया
बाणाः पुष्पसायकात्मकाः । मुखे सुरूपत्वे सति परिणामे पुरुषत्वात् ।
तस्य स्वात्मनो धनुर्दिक्षुकोदण्डं तु मनस्तत्त्वं विषयपरमार्थस्वरूपाणां-
मिन्द्रियाणां तत्तद्विषयेषु प्रेरकत्वात् । तथा चोक्तं रहस्यनामसद्वेषे—

रागस्वरूपपाशाद्या क्रोधाकाराङ्गुशोज्ज्वला ।

मनोरूपेक्षुकोदण्डा पञ्चतन्मात्रसायका ॥ इति

5.

शक्ततन्त्रोक्तानि सदाशिवध्यानानि । Tāntrik Sadāśiva Dhyānas.

(a) महानिर्वाणतन्त्रे १४शोक्तासे सदाशिवध्यानं ॥

ध्यायेत् सदाशिवं शान्तं चन्द्रकोटिसमप्रभम् ॥ ३१

व्याघ्रचर्मपरिधानं नागयज्ञोपवीतनम् ।

विभूतिलिप्तसर्वाङ्गं नागलङ्कारभूषितम् ॥ ३२

धूम्रपौताखण्डेतरक्तैः पञ्चभिराननैः ।
 युक्तं त्रिनयनं विभ्रज्जटाजूटधरं विभ्रम् ॥ ३३
 गङ्गाधरं दशसुजं शशिप्रोभितमस्तकम् ।
 कपालं पावकं पाशं पिण्डाकं परसुं करैः ॥ ३४
 वामैर्दधानं दक्षैश्च शूलं वच्चाङ्गुशं शरम् ।
 वरश्च बिभ्रतं सर्वैर्देवैर्मुनिवरैः स्तुतम् ॥ ३५
 परमानन्दसन्दोहोत्तसत्कुटिललोचनम् ।
 हिमकुन्देन्दुसङ्काशं वृषासनविराजितम् ॥ ३६
 परितः सिद्धगन्धर्वैरप्सरोभिरहर्निशम् ।
 गीयमानमुमाकान्तमेकान्तशरणप्रियम् ॥ ३७

धूम्रेत्यादि । बिभ्रत् बिभ्रतम् । सुपां सुलुगित्यमो लुक् ॥ ३४ ॥
 ३५ ॥ वामैर्दधानमित्यादि । बिभ्रतम् दधतम् ॥ ३६ ॥

परमानन्देत्यादि, परमानन्दसन्दोहोत्तसत्कुटिललोचनं परमानन्द-
 सन्दोहेनोत्तसन्ति कुटिलानि लोचनानि यस्य तथाभूतम् । सन्दोहः
 समूहः ॥ ३८ ॥ ३९ ॥ ४० ॥

इति हरिहरानन्दकृता टीका ॥ ¹

Sadāśiva सदाशिवः = 'The Eternal, ever-existent Śiva ²; विभ्र =
 The Omnipresent; परमानन्द = 'His eyes half-closed, in the excess
 of bliss (the eyes are in the sleepy, slanting half-closed position
 of intoxication and *Samādhī*).'

¹ See A. Avalon: *Mahānirvāṇatantram (The Tantra of the Great Liberation)*, 14th Ullāsa, pp 37-38, for English translation and notes.

² “सदा सर्वकालेषु वर्तमानः शिवः सदाशिवः, किं कादाचित्कोऽपि शिवोऽस्ति
 यद्वाष्टनये सदेति विशेषणम्; अस्तीत्याह—तत्र ब्रह्माविष्णु रुद्रमहेश्वरमूर्तीनामुत्तरो-
 त्तरचिरकालवर्तिनेषु सदाशिवाख्य-पञ्चममूर्त्यपेक्षया कादाचित्कीं रुद्रमूर्तिं व्यावर्त-
 यितुं सदेति विशेषणोपादानसंभवात् । . . . यद्वा परमशिवे वा केवल-
 योगिकोऽयं द्रष्टव्यः । तत्र कालावच्छेदरहिते सदापदसामञ्जसात् ।”

— श्रीः ॥ शिवतत्त्वरचस्यम् ॥ —

— नीलकण्ठदीक्षितेन विरचितम् ॥

श्रीरङ्गम् । श्रीवाणीविद्यासमुद्रायन्मालयः । १९१५ ॥

The disposition of weapons would be proceeding from Right to Left (दक्षिणोर्द्धकरक्रमात्) ¹.

(Left)

- L5—skull (कपालम्)
- L4—fire (पावकः)
- L3—the noose (पाशम्)
- L2—*Pināka*-bow (पिणाकम्)
- L1—the axe (परशुः)

(Right)

- R1—trident (शूलम्)
- R2—thunderbolt (वज्रम्)
- R3—goad (शङ्खुशम्)
- R4—arrow (शरम्)
- R5—blessings (वरमुद्रा)

¹ Regarding the disposition of *Āyudha-s*, the following works should be referred to :—

(a) *Parśurāmakalpśūtram*, Gaekwad's Oriental Series, No. 22 (Baroda), Part I. पृष्ठ ८७

“आयुधस्थाननियमः ।

तदुक्तं रुद्रयामले—

आयुधानां तु ते ध्यानं ब्रवीमि शृणु शाङ्करि
खड्गवाणाङ्कुशगदाज्ञानशूलभुसुण्डिकाः ॥
भङ्गो दण्डो वज्रशक्तौ परिघप्राप्तमोरराः ।
मालामुसलपरशुमुखा दक्षकरस्थिताः ॥
पाशशङ्खं चापफलं चर्मखट्वा (द्वा ?) ऋपुस्तकम् ।
घण्टाडमरमुण्डं च वामदक्षे सुसंस्थितम् ॥
वराभये शङ्खचक्र पुण्यपात्रं द्वयस्थितम् ।
अनुक्ते वामदक्षेः प्रादक्षिण्यक्रमान्नरैः ॥
याज्यानि सर्वायुधानि ज्ञेयानि परमेश्वरि ।
चक्रशङ्खौ तथाऽभौतिवरौ संमुखसंस्थितौ ॥ इति ॥

अस्यार्थः—

आयुधस्थानानुक्तौ खड्गादिपरश्वन्ता दक्षकरे नियताः । पाशादिमुष्टान्ताः वामे नियताः । शङ्खादिपाचान्ताः इच्छया उभयत्रापि । पाशाङ्कुशादियुग्मपञ्चकं संमुखे । यत्संख्याकदक्षकरे युगमान्यतरं तत्संख्याकवामकर एवापरम् । वामोर्ध्वादरभ्य दक्षोर्ध्व-क्रमे प्रदक्षिणक्रमः विपरीते त्वदक्षिणक्रमः । द्वयोर्विकल्पः इत्यर्थः । ”

(b) *Srī Srī Haribhakti-vilāsa* (Vaisnava Smṛiti), with the commentary of Sanātana Gōsvāmin (*Digdarśinī*) translated by Śrī Mādhava-candra Tarkacūḍāmani, published by Ditto, Dacca.

पृ० ४६० । श्लोक १३००—१३०२ ।—टीका

“दक्षिणे योऽधःस्थितकरस्तत्क्रमादित्येवमादौ अधस्तनो दक्षिणकरः पश्चादूर्ध्व-दक्षिणकरः ततो वामाधस्तनकरः इति क्रमः । ”

Regarding the Right and the Left of the Image proper, Sanātana, in his commentary on *Haribhakti-vilāsa*, has mentioned that there was already controversy on the point—there being two schools who took the Right to refer to the Image or the on-looker, respectively.

But R4 holding the arrow should correspond to L4 and the latter should also carry the bow.

Therefore there is no necessity here to proceed from Right to Left for finding the manner of disposition of weapons. Therefore L1 with Skull corresponds to R1 with Trident; or, L1—Skull: R1—Trident and L4—Bow: R4—Arrow.

(b) Tantrasāra, Chapter II. तन्त्रसारे द्वितीयाध्याये ।—

अथ शिव-मन्त्राः—

उद्दिश्य यम् कृतवती गिरिजा तपस्याम्

यत्पादपङ्कजरजो विबुधा लसन्ति ।

आश्राम्वरं भुजगराजविभूषिताङ्गं

तं चन्द्रमौलिममलं मनसा स्मरामि ॥ १ ॥

अथ वक्ष्ये महेशस्य मन्त्रान् सर्वसमृद्धिदान् ।

यैः पूर्वम्वषयः प्राप्ता शिवसायुज्यमञ्जसा । २ ॥

हेतुं { सान्तमौकारसंयुक्तं विन्दुभूषितमस्तकम् ।

प्रासादाख्यो मनुः प्रोक्तो भजतां कामदो मणिः ॥ ३ ॥

अस्य पूजा ॥ ४ ॥

ततः सामान्यपूजापद्धत्युक्तपौठन्यासं कृत्वा पौठशक्तिर्न्यसेत् ॥ ५ ॥

अथ ऋषिन्यासः ॥ ६ ॥

ततः कराङ्गन्यासौ ॥ ७-८ ॥

ततोऽङ्गन्यासान्तरं कुर्यात् ॥

एवं विन्यस्य ध्यायेत् ॥ ९ ॥

यथा—

मुक्तापीतपयोदमौक्तिकजवावर्णैर्मुखैः

पञ्चभिस्त्यक्षैरक्षितमौशमिन्दुमुकुटं पूर्णन्दुकोटिप्रभम् ।

मूलं टङ्ककपाणवच्चदहनाग्नेन्द्रघटाङ्गुशान्

पाशाभौतिवरं दधानममिताकल्पोज्ज्वलाङ्गं भजे ॥

[रुद्रयामले उत्तरतन्त्रे महातन्त्रोद्दीपने सिद्धमन्त्रप्रकरणे षट्-
चक्रप्रकाशे रुद्रमन्त्रप्रकाशो नाम अष्टचत्वारिंशः पटलः ॥

(c) प्रपञ्चसारे षड्विंशः पटलः ॥

अथाभिवक्ष्यामि मनुं समासात्

प्रासादसंज्ञं जगतो हिताय ।

येन प्रजप्तेन

... .. सिद्धिं लभते यथेष्टाम् ॥ १ ॥

श्रूलाह्वीटङ्कघण्टासिष्टगणिकुलिप्रपाशाग्न्यभौतौर्दधानं

दोभिः श्रौतांशुखण्डप्रतिघटितजटाभारमौलिं त्रिनेत्रम् ।

नानाकल्पाभिरामापघनमभिमतार्थप्रदं सुप्रसन्नं

पद्मस्थं पञ्चवक्त्रं स्फटिकमणिनिभं पार्वतीशं नमामि ॥ ४ ॥

(d) षट्पञ्चनिरूपणे (पूर्णानन्दगिरिकृते) ॥

... .. तस्य

मनोरङ्गे निवसति गिग्गिभिन्नदेहो हिमाभः ।

त्रिनेत्रः पञ्चास्यो ललितदशभुजो व्याघ्रचर्माम्बराढ्यः

सदापूर्वो देवः शिव इति च समाख्यानसिद्धः प्रसिद्धः ॥ २६ ॥

कालौचरणकृत-श्लोकार्थपरिष्कारिण्याः—

अत्र देवस्य दशभुजेष्वस्त्रविशेषानिभाधानात्—

श्रूलं टङ्ककपाणवच्चदहनान्नागेन्द्रघण्टाङ्कुशान्

पाशाभौतिकरं दधानममिताकल्पोज्ज्वलाङ्गं भजे । इति

ध्यानान्तरे यान्यस्त्राण्युक्तानि तान्यस्य भुजेषु चिन्तनीयानीति ध्येयम् ।

6.

सदाशिवः । श्रीवागमोक्तः ॥

सदेषस्थापनं वक्ष्ये तत्तत्क्षणापुरस्सरम् ।

ब्रह्मैश्वर्यादिभिः कुर्यात् पूर्वोक्तैस्तं विशेषतः ॥

बद्धपद्मासनं श्वेतं स्थितं पञ्चास्यसंयुतम् ।

पिङ्गलाभजटाचूडं (जूटं) दशदोर्दण्डमण्डितम् ॥

अभयं च प्रसादं च तथा शक्तिं त्रिशूलकम् ।
 खट्वाङ्गं दक्षभागस्यैर्वहन्तं करपल्लवैः ॥
 भुजङ्गं चाक्षमालां च डमरुं नीलपङ्कजम् ।
 बीजापूरं (बीजपूरं ?) च वामस्यैर्वहन्तं सुप्रसन्नकम् ॥
 अर्चनाध्यायसंसिद्धध्यानान्तरयुतं तु वा ।
 इच्छाज्ञानक्रियाशक्ति-त्रयसंस्तुतलोचनम् ॥
 ज्ञानचन्द्रकलायुक्तं कलावर्धोपलक्षितम् ।
 ब्रह्मसूत्रादिकं कार्यं सुवेशः प्रतिमोदितम् ॥
 एवं सदाशिवः कार्यो मनोन्मन्या समन्वितः ।
 (उत्तरकामिकागमे त्रिचत्वारिंशत्तमपटले ॥) ¹

6 (a).

एवं देवी प्रकर्तव्या तस्यास्संज्ञा द्विधा मता ।
 मनोन्मनीति गौरौति लक्ष्यभेदं तु नानयोः ॥
 मूर्तिस्सादाशिवी यत्र कल्प्यते तत्र कल्पिता ।
 तदा मनोन्मनीसंज्ञां लभते विप्रसत्तमाः ॥
 नृत्तमूर्त्यादिभेदेषु गोर्याद्याख्यां समन्नुते ।
 (उत्तरकामिकागमे चतुस्त्रिंशत्तमपटले ॥) ²

7 (a) सदाशिवः । शिल्प-शास्त्रोक्तः ॥ ³

सदाशिवध्यानं ॥

इन्दुनिभ-पञ्च-मुख-पञ्च-दश-नेत्रं

एकतनु-पादद्वय-पञ्च-कर-युग्मं ॥

¹ Vide Gopinātha Rao : *Elements of Hindu Iconography*, Vol. II, Part II, Appendix B, p. 187 । प्रतिमासूक्ष्माणि ।

² Vide Gopinātha Rao : *Elements of Hindu Iconography*, Vol. I, Part II, Appendix B, p. 104.

³ Probably मानसारे in the *Mānasāra* (?). Both quoted in *सृष्टिध्यानं*, a South-Indian MS., of which a copy exists in V.R.S. Library, Rajshahi.

श्रूलकरटंकमशिव(मसि)वच्चमभयं स्यात्

पाश्वरदाकुशमणिर्दहन-वामे

श्वेतकमलासन-सदाशिव-रूपं ॥

ध्यात्वा

मणिः = Water vessel.

7 (b).

सदाशिव-ध्यानं ॥

पञ्चास्यं दशहस्तपञ्चनयनं सर्वाभयं श्रूलकं ॥

वच्चं शक्तिभुजंगमेन सहितं वामे वगं पाशके

षण्णामङ्गुशटंकमर्जुनकरं पीतासितं शोणितं ॥

पीतं बिम्बतमाननं हृदि भजेत् सदाशिवं विग्रहं ॥

अर्जन = Peacock.

8.

पुराणोक्ता सदाशिव-पूजापद्धतिः ॥

हरिरुवाच । ०[सूत-उवाच]०

शिवार्चनं प्रवक्ष्यामि धर्मकामादिसाधनम् ।

त्रिभिर्मन्त्रैराचामेत ०[मेत्]० स्वाहान्तैः प्रणवादिभिः ॥ १

ओं ह्रां आत्मतत्त्वाय ओं विद्यातत्त्वाय ह्रीन्तथा ।

ओं ह्रूं शिवतत्त्वाय स्वाहा हृदा स्यात् ओत्रवन्दनम् । (॥२॥)

भस्मस्नानं तर्पणञ्च ओं ह्रां यां स्वाहा सर्वमन्त्रकाः । (॥३॥)

सर्वे देवाः सर्वमुनिर्नमोऽन्तो वीषडन्तकः । (॥३॥)

स्वधान्ताः सर्वपितरः स्वधान्ताश्च पितामहाः ॥ ३ (॥४॥)

ओं ह्रां प्रपितामहेभ्यस्तथा मातामहादयः । (॥४॥)

ह्रां नमः सर्वमाढ्यस्ततः स्यात् प्राणसंयमः ॥ ४ (॥५॥)

आचामं मार्जनञ्चाथो गायत्रीञ्च जपेत्ततः ॥ ५

ओं ह्रां तन्महेशाय विद्महे वाग्विशुद्धाय धीमहि तन्नो बभ्रुः
प्रचोदयात् ॥ ६

सूर्योपस्थापनं कृत्वा सूर्यमन्त्रैः प्रपूजयेत् ॥ ७ (१)
 ओं हं ह्रीं ह्रूं ह्रैं ह्रौं ह्रः शिवसूर्याय नमः । (॥७)
 ओं हं खखोल्काय सूर्यमूर्तये नमः ।
 ओं हं ह्रीं सः सूर्याय नमः ॥ ८
 दक्षिणे पिङ्गले त्वाति प्रभूतासि नमः स्मरेत् ॥ ९ (१)
 ०[दक्षिणे पिङ्गले त्वतिभूतानि नियमं स्मरेत्]०
 अग्न्यादौ विमलेशानमाराध्य पश्चमं सुखम् । (॥९)
 यजेत् पद्माक्षं शं दीप्तां शौं सूर्यां हं जयाक्ष रें ।
 भद्राक्ष रैं विभूतिं शौं विमलां रौममोघिकाम्
 रं विद्युताक्ष पूर्वादौ रो मध्ये रं सर्वतोमुखीम्
 अर्कासनं सूर्यमूर्तिं क्रां क्रं सः सूर्यमर्चयेत् ।
 ओं आं हृदयाकां च शिरः शिखाय च भुर्भवस्वरें
 ०[शिरःशिखाय]०
 ज्वालिनीं ह्रूं कवचस्य चास्त्रं राज्ञीं च दीक्षिताम् ।
 यजेत् सूर्यहृदा सर्वोन् सौं सोमश्च मं मङ्गलम्
 ०[वं]० वु बुधं वृं वृहस्पतिं भं भार्गवं शं शनैश्चरं
 रं राहुं कं यजेत् केतुं ओं तेजश्चण्डमर्चयेत्
 सूर्यमभ्यर्च्य चाचम्य कणिलतोऽङ्गकान् न्यसेत् ।
 हं ह्रीं शिरो ह्र शिखा ह्रै वस्त्रं ह्रौं च नेत्रकम्
 होऽस्त्रं शक्तिस्थितिं कृत्वा भूतशुद्धिं पुनर्न्यसेत्
 अर्घ्यपात्रं ततः कृत्वा तदङ्घ्रिः प्रोक्षयेद्यजेत्
 आत्मानं पद्मसंस्थं ह्रीं शिवाय ततो बद्धिः ॥ १६
 द्वारे नन्दीमहाकालौ गङ्गा च यमुनाथ गौः ।
 श्रीवत्सं वास्वधिपतिं ब्रह्माणश्च गणं गुरुम् ॥ १७
 शक्तयन्तो यजेन्मध्ये पूर्वादौ धर्मकादिकम् ।
 अधर्माद्यश्च वृद्धादौ मध्ये पद्मस्य कर्णिके ।
 वामा ज्येष्ठा च पूर्वादौ रौद्रौ कालौ शिवासिता
 ओं हं ०[ह्रै]० कलविकरिण्यै वलविकरिणी ततः ।
 बलप्रमथिनी सर्वभूतानां दमनी ततः ॥ १८

मनोन्मनी यजेदेताः पीठमध्ये शिवायतः ।

शिवासनमहामूर्त्तिं मूर्त्तिमध्ये शिवाय च ॥ २०

आवाहनं स्थापनञ्च सन्निधानं निरोधनम् ।

सकलौकरणं मुद्रादर्शनञ्चाध्यपाद्यकम् ॥ २१

आचामाभ्यङ्गमुदत्तस्नानं निर्ममञ्चनञ्चरेत् ।

वस्त्रं विलेपनं पुष्पं धूपं दीपं चरुं ददेत् ॥

आचामं मुखवासञ्च ताम्बूलं हस्तशोधनम् ।

कुञ्जचामरौपवीतं परमौकरणं चरेत् ॥ २३

रूपकल्पनकैकत्वे जपो जपसमर्पणम् ।

स्तुतिर्नतिर्हृदाद्यैश्च ज्ञेयं नामाङ्गपूजनम् ॥ २४

अग्नीशरक्षोवायव्ये मध्ये पूर्वादितोऽस्त्रकम् ।

इन्द्राद्यांश्च यज्जेच्चण्डं तस्मै निम्नाल्यमर्पयेत् ॥

गुह्यातिगुह्यगोप्ता त्वं गृह्याणास्मत्कृतं जपम् ।

सिद्धिर्भवतु मे देव त्वत्प्रसादात् त्वयि स्थिते ॥ २६

यत् किञ्चित् कर्म हे देव सदा सुकृतदुष्कृतम् ।

तन्मे शिवपदस्थस्य द्वे अक्षयः क्षपय शङ्कर* ॥ २७

(* क्षयं कुरु यशस्कर इति किञ्चित् पाठः ।)

०[क्षयं कुरु यशस्कर]०

शिवो दाता शिवो भोक्ता शिवः सर्वमिदं जगत्

शिवो जयति सर्वत्र यः शिवः सोऽहमेव च ॥ २८

यत्कृतं यत्करिष्यामि तत्सर्वं सुकृतन्तव ।

त्वं ज्ञाता विश्वनेता च नान्यो नाथोऽस्ति मे शिव

०[§]० अथान्येन प्रकारेण शिवपूजां वदाम्यहम् ।

गणः सरस्वती नन्दौ महाकालोऽथ गङ्गया ॥ ३०

यमुनास्त्रं वाक्स्वधिपो द्वारि पूर्वादितस्त्रिमे ।

इन्द्राद्याः पूजनीयाश्च तत्त्वानि पृथिवी जलद्व ॥ ३१

०[जलं]०

तेजोवायुर्व्योम गन्धो रसरूपे च शब्दकः ।
 स्पर्शो वाक् पाणिपादौ च पायूपस्थं श्रुतिवचो ॥
 चक्षुर्जिह्वा घ्राणमनोबुद्धिश्चाहं प्रकृत्यपि ।
 पुमान् रागो द्वेषविद्ये कालाकालनियत्यपि ॥ ३३
 °[-कालो]°

माया च शुद्धविद्या च ईश्वरश्च सदाशिवः ।
 शक्तिः शिवश्च तान् ज्ञात्वा मुक्तो ज्ञानी शिवो भवेत् ।
 °[यः शिवः स हरिब्रह्मा सोऽहं ब्रह्मास्मि मुक्तिः ॥
 § भूतशुद्धिं प्रवक्ष्यामि यथा शुद्धः शिवो भवेत् ।]°
 हृत्पद्मे सद्यो मन्त्रः स्यान्निरुत्तिश्च कला इडा ॥ ३४ (३५)
 °[हृत्पद्म सद्योमन्त्रः]°

पिङ्गला द्वे च नाड्यौ च प्राणोऽपानश्च माहृतौ
 इन्द्रदेहो ब्रह्मदेहश्चतुरश्रश्च मण्डलम् ॥ ३६
 वक्ष्येण लाञ्छितं दीप्तमेकोद्घातगुणाः शराः ।
 ? हृत्स्थान सा तूणहनं शतकोष्ठप्रविस्तरम् ॥ ३७
 °[हृत्स्थान सा तूणहनं]°

ओँ क्रौँ प्रतिष्ठायै ओँ ह्रँ °[ऊँ]° हः फट् ।
 ओँ क्रं विद्यायै क्रूं हः फट् ॥ ३८
 चतुरशीतिकोटीनामूच्छयं भूमितन्त्रकं °[-तन्त्रकं]°
 तन्मध्ये भवत्क्षेत्र आत्मानश्च विचिन्तयेत् ॥ ३९
 अधोमुखीं ततः पृथ्वीं तदच्छुद्धं °[तत्तच्छुद्धं]° भवेद्भुवम् ।
 वामदेवी [वामादेवी] प्रतिष्ठा च
 सुषुप्ता कारिका °[धारिका]° तथा ॥ ४०
 समानोदानवरुणौ देवता विष्णुकारणम्

°[देवताविष्णुकारणम्]°

उद्घाताश्च गुणं वेदाः श्वेताध्यानं तथैव च ॥
 एवं कुर्यात् ऋणपद्ममर्जच्चन्द्राख्यमण्डलम् ।
 दन्ताङ्कितं दिशतकं कोटिविस्तीर्णमास्मरेत् ॥ ४२
 °[-वां स्मरेत्]°

चतुर्नवत्यच्छयश्च आत्मानश्च अधोमुखम् ।
 तासु स्थानश्च पद्मश्च अधोरो विद्ययान्वितः ॥ ४३
 नाभ्योऽधो हस्तिजिह्वा ध्यानो नागोऽग्निदेवता ।
 रुद्रहेतुस्तिरुद्धातास्तिगुणा रक्तवर्णकम् ॥ ४४
 ज्वालाकृते त्रिकोणश्च चतुःकोटिशतानि च ।
 विस्तीर्णश्च समुत्प्रेधं रुद्रतत्त्वं विचिन्तयेत् ॥ ४५
 ललाटे तु तत्पुरुषः शक्तिर्यः प्रादलं बुधाः ।
 कूर्मश्च ह्रकरो वायुर्देव ईश्वरकारणम् ॥ ४६
 दिरुद्धातगुणौ द्वौ च दृषं षड्गोमण्डलम् ।
 विन्दुद्वितश्चाष्ट-कोटिविस्तीर्णश्चोच्छयन्तथा ।
 चतुर्दशधिकं कोटि वायुतत्त्वं विचिन्तयेत् ॥ ४७
 द्वादशान्ते सरसिजे प्रान्त्यतीतास्तथेश्वराः ।
 कुङ्कुमशङ्खिनी नाड्यो देवदत्तो धनञ्जयः ॥ ४८
 शिखिशानकारणश्च सदाशिव इति स्मृतः ।
 गुण एकस्तथोद्धातः शुद्धस्फटिकवत् स्मरेत् ॥ ४९
 षोडशं कोटिविस्तीर्णं पञ्चविंशति चोच्छयम् ।
 वर्त्तलच्चिन्तयेद्दाम भूतशुद्धिरुदाहृता ॥ ५०
 गणगुरुर्द्विजगुरुः शक्त्यनन्तौ च धर्मकः ।
 ज्ञानवैराग्यमैश्वर्यन्ततः पूर्वदिपत्रके ॥ ५१
 अधोर्द्धवदने द्वे च पद्मकर्णिककेशरम् ।
 वामाद्या आत्मविद्या च सदा ध्यायेत् शिवाख्यकम् ।
 तत्त्वं शिवासने मूर्तिर्ह्रीं ह्रीं विद्यादेहाय नमः
 बद्धपद्मा^०[-सना-]^०सीनः सितः षोडशवर्षकः ।
 पञ्चवक्त्रः कराग्रैः खेदशभिस्त्रैव धारयन् ॥ ५३
 अभयं प्रसादं शक्तिं मूलं खट्वाङ्गमौश्वरः ।
^०[अभयप्रसादशक्तिं]^०
 दक्षैः करैर्वामकैश्च भुजगश्चाक्षसूत्रकम् ।
 डमरुकं नीलोत्पलं बीजपूरकमुत्तमम् ॥ ५४

इच्छाज्ञानाक्रियाशक्तिस्त्रिनेत्रो

(इच्छा-ज्ञान-क्रिया-शक्ति-)हि सदाशिवः ।

°[इच्छाज्ञानाक्रिया-]°

एवं शिवार्चनध्यानौ सर्वदा कालवर्जितः ॥ ५५

इहाहोरात्र°[रात्रि]°चारेण त्रीणि वर्षाणि जीवति ।

दिनद्वयस्य चारेण जीवेद्वर्षद्वयं नरः ॥ ५६

दिनत्रयस्य चारेण वर्षमेकं स जीवति ।

°[„ „ „ „ „]°

(दिनद्वयस्य चारेण वर्षमेकं स जीवति ॥ ५६

दिनत्रयस्य चारेण जीवेद्वर्षद्वयं नरः ।)

नाकाले शीतले मृत्युरूपे चैव तु कारके ॥ ५७

इति श्रीगारुडे महापुराणे पूर्वखण्डे शिवादिपूजायां त्रयो-
विंशोऽध्यायः ॥ २३ ॥¹

°[इति महापुराणे गारुडे शिवादिपूजा समाप्ता त्रयोविंशो-
ऽध्यायः ॥]°²

9.

पृथ्वीमण्डलं पौतवर्णं मूलाधारे ।

अम्भोजमण्डलं शुक्लवर्णं स्वाधिष्ठाने ।

वह्निमण्डलं रक्तवर्णं मणिपूरे ।

वायुमण्डलं धूमाभं अनाहते ।

नभोमण्डलं शुक्लवर्णं विशुद्धे ।³

¹ *Garuḍa Purāṇam*, Pūrvakhaṇḍam, Chapter 23. (Bangavāsī Press, Calcutta.) Various readings indicated within brackets ().

² Ditto, *श्रीगणेशोपनिषद्* चण्डिकाप्रकरणे । कनिका । म. १२२० ।
The different readings of this edition are shown within box brackets [].

³ Arthur Avalon: *षट्चक्रनिरूपणम्* (*Tāntrik Texts*, II), Ślōka 28. Com-
mentary of Kālicāran कालीचरण. Also see p. 193, note 2, *supra*.

(a).¹

Īsāna—(आकाशः)

Tatpuruṣa—(वायुः)

Aghōra—(अग्निः)

Vāmadēva—(जल)

Sadyōjāta—(पृथिवी)

(b).²

(White)—(Facing upwards).

(Yellow)—(East).

(Black)—(South).

(Red)—(North).

(White)—(West).

10.³ पुराणोक्ता Purāṇoktā.

(Up) Īsāna—(सदाशिवः)

(E.) Tatpuruṣa—(महादेवः)

(S.) Aghōra—(भैरवः)

(N.) Vāmadēva—

(W.) Sadyōjāta—

(Up)—(White).

(Front)—(Yellow).

(Right)—(Black).

(Left)(Two-eyed)—(उभावक्त्रं)—(Red).

(Back) ?—(नन्दिवक्त्रं)

¹ Gopīnātha Rao: *Op. Cit.* Vol. II, p. 404, Part II. सूतसंहिता ।

Also विष्णुधर्मोत्तरं ४८ अध्यायः । Ch. 48.

² शैवे कारणाम्ने Gopīnātha Rao. *Op. Cit.* Vol. II, Part II, pp. 188-91³ त्रीविष्णुधर्मोत्तरं ४८ अध्यायः Visnudharmōttaram, Part III, Ch. 48 and Gopīnātha Rao. *Op. Cit.* Vol. II, Part II, p. 188 (Quotation from I.D.)

APPENDIX III.

ŚIVA'S ATTENDANTS.

वृष VṚṢA AND नन्दी NANDIN.

The Bull *Nandī*, Śiva's favourite *Vāhana*, is of snow-white colour. He too gets worship as an attendant of Śiva.¹

The Bull (Vṛṣa) is regarded as the God *Dharma*, in the Purāṇas. In the Vedas Vṛṣa or Vṛṣabha is an usual epithet for some of the gods. Its meaning² is वर्षिता कामनास्—'he who showers blessings'. But such metaphorical use of the term seems to be later forgotten and we find a text in the Ṛgveda itself, speaking of a divine bull of many feet, heads and so forth :

चत्वारि षट्ङ्गा त्रयो अस्य पादाः

दे शौर्ध्वे सप्तहस्तासो अस्य ।

त्रिधा बद्धो वृषभो रोरवीति

महो देवो मर्त्याः आविवेश ॥ R.V. 4. 58. 3.

where, the Bull is explained to be the *Yajña-rūpī Vṛṣabhaḥ* यज्ञरूपो वृषभः³. In this stage Vṛṣa must have been used both in a Mnemonic and Symbolic sense.

In the Tāntrika text quoted already, the *Vṛṣa* of Śiva is a personification of the sacred words of the Vedas. Generally, therefore, the Vṛṣa might be taken to be an Apotheosis of the Vedic Religious Sacrifices in which sacred hymns were chanted. The white colour and the genus of Śiva's *Vāhana* might have been suggested firstly from huge snow-covered rocks in the Himālayas looking like bulls.—Cf. Kālidāsa's comparison⁴ of the Citrakūṭa

¹ See e.g. as in the following text, Śaradātīlakam, Pātala 18
शरदातिलकम् पटल १८—यजेत्

हिमालयाभं वृषभं तीक्ष्णशृङ्गं त्रिलोचनम् ॥ ४१ ॥

सर्वाभरणसंदौर्गं साक्षाच्छब्दस्वरूपिणं ।

Commentary *Tantra-pradīpa*, on the above, runs as follows :—

वृषभाद्यर्चनमाह । यजेदिति पूर्वार्थवृषभेषु [हिमालयाभं तीक्ष्णशृङ्गं त्रिलोचनं सर्वाभरणभूषितां(-तं) शब्दस्वरूपं वृषभं— ॥

² Note Sāyaṇa's etymological explanation is no traditional meaning. In the *Rgveda*, the Bull metaphorically conveys the idea of great physical strength and the power of fertilising.

³ Vide *Rgghāṣyopodghāta* ऋषाघोपोद्घात of Sāyaṇa, where the passage is noticed and interpreted in two places.

⁴ *Raghuvamśam* XIII, 47.

hill with a fiery bull. When the mnemonic sense of the term Vṛṣa was forgotten, the Vedic *Yajña* was identified with the Bull, the form of which must have already suggested, itself, as indicated before.

The word Bāsava is a corrupt form for Vṛṣabha and it is the name of the founder of the *Līṅgāyit* sect, by whom Bāsava is considered an incarnation of Nandin.

Nandikeśvara or Nandī is also the name of Śiva's *Gaṇa*. He resembles Śiva in the Candrasekhara चन्द्रशेखर form. He was one of the *Nāṭyaśāstrakāras*¹, and was the Initiator of the *Kāmaśāstra* as also one of the Eighteen Teachers of *Vāstusāstra* (Architecture)² who were mentioned by Viṣṇu in his fish incarnation.³

भृङ्गी BHRĪNGĪ AND महाकाल MAHĀKĀLA.

Bhrīṅgī is represented as a mere skeleton, holding a trident ; and Mahākālā as a pot-bellied (तुन्दिल, *tundila*) dwarf, also with a trident. Either of them and especially the first very probably represents some extremist sect of the Śaivas like the Lakulīṣa Pāśupatas or Kālāmukhas. Both were born from the seed of Śiva.

There are both Paurāṇik accounts of Bhrīṅgin's leanness⁴ as also a poetic explanation.⁵ Bhrīṅgī was so called because he was as black as the bee.

Similarly Mahākālā was so named for he was as dark-coloured as pressed collyrium (दलितान्न). Mahākālā represents time. He is pot-bellied—probably because time embraces everything.

¹ Author of अभिनयदर्पणम् *Abhinayadarpanam*: Eng. Tr. by A. Coomaraswamy and G. K. Duggirala (Cambr., Mass. 1917); Ed. of Sanskrit Text with Eng. Trans. by Manomohan Ghosh, Metropolitan Publ. Co., Calcutta, 1934.

² *Matsya-purāṇam*. Chapter 252, Ānandāśram Edition (1907).

भृङ्गुर्निर्विशिष्टश्च विश्वकर्मा मयस्तथा ।

नारदो नगजिज्ञैव विशालाक्षः पुरन्दरः ॥ २ ॥

ब्रह्मा कुमारो नन्दीशः शैलको गर्ग एव च ।

वासुदेवो निरुद्धश्च तथा शूद्रकृदस्यती ॥ ३ ॥

अष्टादशैते विख्याता वास्तुशास्त्रोपदेशकाः ।

संक्षेपेणोपदिष्टं यन्मनवे मत्सरूपिणा ॥ ४ ॥

³ *Vide* Gopīnātha Rao : *Op. Cit.* Vol. II, Part II and Krishna Śāstrī : *Op. Cit.* for full description and history of Nandin.

⁴ *Vide* Gopīnātha Rao and H. Krishna Śāstrī : *Op. Cit.*

⁵ See under Bhrīṅgin: सदुक्तिकर्णामृतम् *Saduktikarnāmr̥itam* of Śrīdharadāsa (Bibliotheca Indica); complete Ed. Motilāl Bānārasīdās, Lahore.

In his former life Bhṛīṅgī was the Asura Andhaka who again in his former birth was the impious King Vēṇa. Śiva slew Andhaka but pleased with the latter's devotion made him one of the chief personal attendants, in his next birth.

On the other hand, Mahākāla was in his former life, the Asura Bāṇa. The former was, also similarly made in the next birth, one of his chief personal attendants, by Śiva.¹

साक्षमालस्त्रिशूलौ च नन्दौशो दारपालकः ।

महाकालोऽमिमुण्डौ स्याच्छूलखेटकरस्तथा ॥ ३९ ॥

कृशो भृङ्गो च नृत्यन्वै कूष्माण्ड-स्थूलखर्ववान् ।

गजगोकर्णवक्त्राद्या वीरभद्रादयो गणाः ॥ ४० ॥²

Mahākāla is also the name of the Bhairava भैरव of दक्षिणाकालिका Dakṣiṇā-kalikā. (See Appendix IV).

महाकालं यजेद्देव्या दक्षिणे धृम्भवर्णकम् ।

बिभ्रतं दण्डखट्वाङ्गौ दंष्ट्राभौममुखं शिशुम् ॥

व्याघ्रचर्मामृतकटिं तुन्दिलं रक्तवाससम् ।

त्रिनेत्रमूर्द्धकेशश्च मुण्डमालाविभूषितम् ।

जटाभारलसच्चन्द्रखण्डमुग्र ज्वलन्निभम् ॥³

क्षेत्रपाल KṢĒTRAPĀLA.

The most distinctive characteristic of Kṣētrapāla is that he is nude, just as the striking feature of Bhṛīṅgin is his leanness and that of Mahākāla, his pot-belliedness.

क्षेत्रपालश्चूलविलसत्करं कालघनप्रभम् ।

क्षेत्रपालं त्रिनयनं दिगम्बरमथार्चयेत् ।⁴

¹ *Kālikāpurāṇam* (Śrī Venkateśvara Press), Chapter 45-49.

² *Agṇipurāṇam*. Ānandāśram (1900). Chapter 50.

³ Śrī Rādhākānta Dēva: *Sābdakalpadruma*: under महाकाल.

⁴ *Sūradātīlakam*. Chapter 18. Also, see *Tantrasāra*. Chapter II.

APPENDIX IV.

ŚIVA BHAIRAVA.

Iconographically, Bhairava is represented with upturned moustache and tucked up beard, and having round eyes and clotted locks of hair, and as holding *Kapāla* and *Khaṭṭvāṅga*.

According to the Śakta Tantras, when Śiva is associated (संगतः) with the Dēvi—then alone he is Bhairava; but when he is self-restrained and (Ūrdhvalinga ऊर्ध्वलिङ्ग) with the *membrum virile* erect—indicating the greatest virility joined with the utmost self-control, then Śiva is not Bhairava.

‘The Indian Tāntrik cult of the Great Mother of Creation describes her as mother as well as wife of Śiva. Her sanctity is safeguarded by representing Śiva in Ūrdhvalinga style, signifying complete mastery over his passions, without the ugly indication of actual emasculation’.¹ (cf. the Hierodouloi.²

The Kāśmīr Śaiva system, however, takes Bhairava in a symbolical and metaphorical sense: उद्यमो भैरवः.³

The breaking in of the vision of the highest being, by means of intense contemplation, upon the devotee’s mind is called *Bhairava*, because it is his and is caused by him.⁴

अथाष्टदशविद्युत्पत्तिप्रसङ्गे ऋषिध्यानानि ।

महामोक्षतन्त्रे, द्वितीयपटलः ॥⁵

ततः सा कमला विद्या नवभागे च संस्थिता ।

वाग्वादिनौ चान्नपूर्णा तथा प्रत्यङ्गिरा पुनः ।

त्वरिता च महाविद्या दुर्गामहिष्महिनी ।

कामाख्यावामिनी बाला कलौ पूर्णाफलप्रदा ।

भैरवं विष्णुरूपञ्च नवभागे च संस्थितं ।

कालाद्याष्टदशविद्याः सर्वास्त्रैव पतिव्रताः ।

कालिकाया दक्षभागे महाकालं प्रयुज्येत् ॥

¹ Vide Mr. A. K. Maitreya’s notice, *Modern Review*, 1920, September, of Prof. Strong: ‘*The Translation of Lucian’s De Dea Syria*’, the *Syrian Goddess*. Constable & Co., 1913.

² For the *Hierodouloi*—see *E.R.E.* Sub voce.

³ शिवसूत्रविमर्शिनी Śiva-sūtra-vimarśinī I, 5, K.S.T.S., Vol. I.

⁴ Sir R. G. Bhandarkar’s *Vaiṣṇavism and Śaivism*, p. 130.

⁵ From a MS. (which is apparently corrupt) belonging to श्रीकृष्णदत्त भट्टाचार्य । विप्र बोयलिया । (राजशाही) ।

धूम्रवर्णं महाकालं विकटास्यं चतुर्भुजं ।
 घोर^०[—दंष्ट्र]^० महाकायं महाभौमकपालकं ।
 व्याघ्र(घू?)र्णितं त्रिनेत्रं चन्द्रसूर्य्याभिरूपकं ।
 श्रुलासिपाशचक्रेण सदासंहारकारकं ।
 महाविघ्नविनाशा(श?)श्च शत्रुक्षयं वरप्रदं ।
 सर्वसम्पत्प्रदं नित्यं महाकालं भजाम्यहं ॥ १ ॥
 क्षोभादिरहितं देवं ताराया दक्षसंस्थितं ।
 नीलकण्ठं पञ्चवक्त्रं पञ्चदशान्निविद्यतं(?) ।
 व्याघ्रचर्माम्बरधरं पीतं हलाहलं विषं ।
 चतुर्भुजं वृषभस्य(?) मक्षोभं भैरवं भजे ॥ २ ॥
 (सु?)सून्दर्या दक्षिणभागे पञ्चमी भैरवं यजेत् ।
 पञ्चवक्त्रं दशभुजं प्रतिवक्त्रे त्रिलोचनं ।
 अग्निमाद्यष्टसिद्धीश(?)दक्षिणामूर्त्तिसंज्ञकं ॥ ३ ॥
 खर्गे मर्त्ते च पाताले या चाद्या भुवनेश्वरी ।
 (?)तयास्तु वसते येन त्र्यम्बकं तेन कथ्यते ।
^०[एतया रमते येन त्र्यम्बकस्तेन कथ्यते]^० ¹
 चतुर्भुजं पञ्चवक्त्रं त्रिनेत्रं वृषवाहनं
 अग्निमाद्यष्टदं नित्यं भक्तानां भक्तवत्सलं । (॥ ४ ॥ ?)
 भुवनेश्वीदक्षभागे त्र्यम्बकं भैरवं यजेत् ॥ ४ ॥ (। ?)
 वृषारूढं सुक्लवर्णं ध्यायेत् भौमं चतुर्भुजं ।
 पञ्चास्याक्षिपञ्चदशं भक्तानां मोक्षदायकं ।
 भैरवं दक्षिणामूर्त्तिं भैरव्या दक्षसंस्थितं ॥ ५ ॥
 कबन्धं भैरवं सुक्लं द्विभुजं वृषवाहनं ।
 व्याघ्रचर्माम्बरधरं (?)पञ्चास्याक्षदरस्थितं ।
 द्विभुजस्तु दक्षभागे ध्यायेत् महायोगाश्रय ॥ ६ ॥

¹ Various readings in तोড়ল-নন্দ [ed. Rasika-mohana] indicated within brackets []^०.

धूमाया भैरवं धूमं धूम्राक्षे मिलनं यदा ।
 तस्मात् धूमावतौ देवौ विधवा नामधारिणी ।
 धूमादक्षे कदाचिच्च पूजयेन्न च भैरवं ॥ ७ ॥
 पीतवर्णमहाभौममेकवक्त्रं चतुर्भुजं ।
 त्रिनेत्रञ्च महारुद्रं जगत्संहारकारकं ।
 द्वीपिचर्माम्बरधरं बाला^०[—या]^० दक्षसंस्थितं ।
 भग्न(?)भूषा चास्थिमालाधारिणं मोक्षदायकं ।
 सदासम्पत्प्रदा नित्यं ध्यायेच्च ब्रह्मभैरवं ॥ ८ ॥
 मातङ्गिभैरवं ध्यायेत् मातङ्गिदक्षसंस्थितं ।
 शुक्लं चतुर्भुजं भौमं पञ्चवक्त्रं त्रिलोचनं ।
 द्वीपिचर्मपरिधानं वृषभस्थं जटाधरं ॥ ९ ॥
 ध्यायेच्च भैरवं धूमं षड्वक्त्राक्षिचयं त्रयं ।
 परशुमृगवराभि(भौ)तिहस्तं सदा सम्पत्प्रदायकं ।
 कमलाया दक्षिणांशे विष्णुरूपं सदाशिवं ॥ १० ॥
 वाग्वादिनी दक्षभागे शुभ्रं चतुर्भुजं शिवं ।
 भैरवं वृषभस्थञ्च भग्न्यास्थिपञ्चवक्त्रकं ।
 द्वीपिचर्मवृत्तकटीं त्रिलोचनं भजाम्यहं ॥ ११ ॥
 अन्नपूर्णादक्षभागे ब्रह्मरूपं शिवं भजेत् ।
 दशास्यं भैरवं त्रि[']शूलोचनञ्च चतुर्भुजं
 वृषारूढं जटाजूटं ध्यात्वा मोक्षप्रदायकं ।
 सर्वसम्पद(त्)प्रदं नित्यं भैरवञ्च भजाम्यहं ॥ १२ ॥
 प्रत्यङ्गिरादक्षभागे महाभैरवभौषणं
 षड्भुजं शुक्लवर्णञ्च दशास्यं वृषवाहनं ।
 त्रिंशदक्षिद्वीपिचर्मपरिधेयं शत्रुनाशनं ।
 वाङ्मासिद्धिकरं देवं कामदं भैरवं भजेत् ॥ १३ ॥
 त्वरिताया दक्षभागे पञ्चवक्त्रं त्रिलोचनं ।
 जटाभारभग्नफणा(०रुणं ?) व्याघ्रचर्मवृत्त['] ? कटौ ।
 द्विभुजं शुक्लवर्णञ्च सर्वशत्रुप्रनाशनं ॥ १४ ॥

वषारूढं शुक्लवर्णं वेदवाङ्मनोचनं ।
 पञ्चास्यस्य(?) जटाजूटं हारा(र?)मालादिभूषणं ।
 द्वौपिचर्म्माम्बुधरं नागयज्ञोपव°[—रि—]°तनं ।
 सर्वविघ्नहर्क्षैव महामोक्षप्रदायकं ।
 दुर्गाया दक्षिणे भागे नारदं भैरवं भजेत् ॥ १५ ॥
 महादेवं श्वेतकायं व्याघ्रचर्म्मावृतं प्रभुं ।
 वषारूढं वेदभुजं पञ्चाननं त्रिलोचनं ।
 भष्मास्थिनागसंयुक्तं वाङ्मांसिद्धिप्रदायकं ।
 श्रीमन् महिषमर्दिन्या दक्षिणे भैरवं भजेत् ॥ १६ ॥
 महाभीमं जटाभारं वृषभस्यं दिग्म्बरं ।
 द्वौपिचर्म्मावृतकटीं श्वेतं चतुर्भुजं प्रभुं ।
 पञ्चास्यश्च पञ्चदशं नेत्रत्रयाननानने ।
 महानागवृत-जटाजूटं भष्मास्थिधारिणं ।
 मन्त्रसिद्धिकरं नित्यं सर्वकामफलप्रदं ।
 कामाख्या-दक्षिणभागे उमानन्दं भजाम्यहं ॥ १७ ॥
 सुन्दरं भैरवं शुभं जटाभष्मास्थिधारिणं ।
 व्याघ्रचर्म्मावृतकटिं द्विभुजश्च त्रिलोचनं ।
 एकवक्त्रं वषारूढं बालादक्षे भजाम्यहं ॥ १८ ॥¹

¹ As in the Brahmanic Pantheon the expression or the attitude of the *Ugra* and the *Raṭra Devatās* in Buddhism, is furious, awe-inspiring or haggard.

Cf. 'Les dieux irrités'—Albert Grünwedel: *Mythologie du Buddhisme au Tibet et en Mongolie*. Leipzig, 1900.

P. 101. ... in the period of Gandhara, that must be looked upon as the first epoch of a rich Mythology of Buddhism of the North, there is the place to notice the first beginnings of a division of the tutelary gods into the benign and terrible forms (*Krodha* and *Sānta*). (translation).

P. 102. In the Lamaism, the benign type of the Buddhas and the Bodhisattvas is clear by itself. But as regards the tutelary gods, we always see them under the form irritated or even terrible (*bhairava*). The old type of the angry gods (*Mahākrodha* is perhaps represented in this manner) are bristling hairs, swollen eyes (including the eye on the forehead), the protruding tongue, the clinched teeth, in addition to bodies thick-set with big limbs and long nails, or often with claws in the feet and the hands. (transl.)

Cf. also, Haridās Mitra:—*The Buddhapratimālakṣaṇam. The Princess of Wales Sarasvatī-bhavana Texts*. No. 48. Benares 1933, (पृष्ठ २७ and note ३०).

Also, Cf. the look of hungry and of weeping man. *Vide Śrī-Viṣṇu-dharmottaram*, Part III, Ch. 37. Śrī-Venkatēśvara Press.

APPENDIX V.

GAṄGĀ AND YAMUNĀ.

The figures of the River Goddesses Gaṅgā and Yamunā stand on the gate-sides of Śaiva Shrines, as *Dvāra-devatās*. E.g. as on the proper Right and Left respectively of Sadāśiva Image, already described, (V.R.S.) No. $\frac{C(b) 1}{235}$. On the

other hand, the figures standing on the two sides of the Natarāja Śiva Image with twelve hands from Dt. Dacca and of the other with ten hands from Nātghar, Dt. Tipperah, are certainly those of Gaurī and Gaṅgā respectively.¹ Really speaking, in these Śaiva specimens, an image of Yamunā is out of place, as she might be more properly associated with Viṣṇu, or Balarāma : while Lord Śiva might be more aptly coupled with his two consorts—Gaurī and Gaṅgā.

The River Goddess Gaṅgā of white complexion is either represented on a Makara with a water-pot in her upraised left hand and a lotus-bunch in her right ; or she might also be conceived as a fair maiden in the fulness of her youth with a flower-garland in her hands.

Gaṅgā was conceived not only as a *Dvāradēvatā* ; but she received independent worship also². The image at Īśvarīpur,

¹ Vide Mr. Nilinikānta Bhaṭṭasālī's Article—*Images of the Dancing Śiva* (Modern Review, June 1920) and—its Bengali version in *Pravāsi*, Natarāja Śiva নটরাজ শিব (প্রবাসী, 1327, ১৩২৭)

The figures have been described by Mr. Bhaṭṭasālī as those of Gaurī গৌরী and Gadā, गदा, respectively. Evidently, Gaṅgā's *Vāhana*—the Makara मकर could be somehow mistaken for the Gōdhā गोधा—the *Vāhana* of Gaurī. (Vide Gopinātha Rao : *Op. Cit.* Vol. I, Part II, *Pratimālakṣaṇāni*, p. 120).

But it is quite difficult to understand why the figure of Yamunā was mistaken for that of the *Āyudha-puruṣa* आयुधपुरुष, Gadā गदा—as the requisite indications (*lakṣaṇa-s*) of an *Āyudhapuruṣa* are absent. Each of the images of weapons and emblems, when personified, must also carry over its crown or in both or either of the hands, the particular weapon or emblem it represents. (Vide Gopinātha Rao : *Op. Cit.* Vol. I, Part II, *Pratimālakṣaṇāni*, pp. 77-78.)

An examination of the photograph of the Nātghar Image and later, a visit to the site, have confirmed the identification of the *Pārśva-dēvata-s* as those of Gaurī and of Gaṅgā.

Mr. Bhaṭṭasālī's गदा Gadā is therefore a lamentable mistake (typographical or otherwise) perpetuated through carelessness.

² Vide *Pranātōsanilata* প্রাণতোষণিতা ভাট, ৯৪২—

Dt. Khulna, is an example of this form of Gaṅgā, as an independent deity. There is a magnificent specimen in the *Ābhaṅga* (slightly bent) pose, in the Museum of the V.R.S. of Gaṅga as a *Dvāradevatā*.¹

The River Goddess Yamunā of dark complexion is represented on a (Tortoise) *Kūrma*, with a water-pot in one hand and a lotus in the other, as on the proper Left of the Sadāsiva Image.

Yamunā seems to have never received independent worship. It has not yet been investigated why the (Tortoise) *Kūrma* was chosen as Yamunā's *Vāhana*. Tortoises certainly abound in the river Yamunā, but the *Kūrma* is regarded now as inauspicious possibly because some varieties of the animal feed upon dead bodies.² The flesh and carrion-eating animals are generally coupled with Death and the other world. They are naturally associated with the terrible forms of Śiva and the *Dēvī*—destroying the universe or killing the demons.

Thus, the dog is the *Vāhana* of *Vaṭuka Bhairava* who also holds, in one hand, the mongoose *নকুল*—while the owl, the vulture, the crow, and the jackal are associated with *Cāmundā*, and *Kālī*. The flesh eating animals above-mentioned, are also thought to augur evil and to divine future events, auspicious or otherwise.

Thus we find the Brahmanic *Tāntrikas* using the mystic diagram of tortoise—*Kūrma-cakra* (কূর্ম-চক্র) as a source of divination. The *Kūrma-cakra* is the diagram of a spread tortoise—on the different parts of whose body, Sanskrit letters are placed in a peculiar order. It is stated in the *Piṅgalā Tantram*—without a knowledge of *Kūrma-cakra*, religious

গঙ্গাধ্যানম্ । [মন্ত্রাধ্যানম্]

শুক্লফটিকসঙ্কাশাং শুক্লাবরবিভূষিতাং ।

শুক্লমুক্তাবলীমালাং হৃদয়োপরিশোভিতাম্ ।

শ্বেতমালাধরাং দেবীং শ্বেতাভরণভূষিতাং ।

সদা ষোড়শবদীয়াং ব্রহ্মদিপরিষেবিতাম্ ।

This conception of Gaṅgā is represented in the beautiful stone image (at *Īśvarīpur* 'Yaśōhar', Dt. Khulnā, Bengal), now worshipped as *Annā-pūrnā*.

(*Vide* শ্রীমতীশ চন্দ্র মিত্র—'ষশোহর খুলনার ইতিহাস', ১মভাগ, ২২৩-২২৪ পৃষ্ঠা ও চিত্র ।)

¹ Full and detailed History of the rise and final development of the Gaṅgā worship, together with iconographic notes of a few extant Images of Gaṅgā of different types, are given in the learned paper on Gaṅgā by *Bābu Akṣaya Kumār Maitrēya*, published in *Rūpam*, No. 6 (1921), from the Indian Society of Oriental Art, Calcutta.

² But, on the other hand, it must be noted that the *tortoise* is given a semi-divine position in the later Vedic Texts, while *Varāhamihira* speaks of the auspicious characteristics of tortoises (কূর্ম-লক্ষণ). Possibly animals with such signs are rare and so these are regarded as auspicious.

sacrifices and rites bear no fruits and all sorts of mishaps occur.¹

The Chinese also have a Tortoise Chart for drawing omens. The Tibetans too have a similar Tortoise Chart for Divination called Srid-pa-ho, in Tibetan² (= **भव-रथ* * *bhava-ratha*).

The River-goddess Yamunā is the twin-sister of the God of Death, Yama—with whom she is united in unholy marriage.

As such, it is reasonable that of all aquatic creatures in the river Yamunā, the (debased ?) River-deity Yamunā's *Vāhana* should be the one most associated with death and also be in itself inauspicious.

The River-goddess Yamunā has therefore very appropriately *Kūrma* (Tortoise) for her *Vāhana* (Vehicle).

¹ See *Tantrasāra*. Basumatī, Edition 1321 B.S., p. 46.

² See *Memoirs, A.S.B.*, Vol. 5, No. 1 —Srid-Pa-ho: A Tibeto-Chinese Tortoise-chart of Divination.

APPENDIX VI.

A. DESCRIPTION OF SADĀŚIVA (TRANSLATION ¹).

I shall now describe the installation (of the image) of the eternally-existent Lord (Śiva) beginning with his characteristics : make (an image of) him specially from the materials previously mentioned, of which stone is the first ;—seated, (with feet) locked in *padmāsana* (Posture), white, possessing five faces, with (knot of) tawny coloured hair-locks, beautiful by ten bar-like (powerful) arms ;—indicating protection and blessing as also pike, trident, skull by the foliage-like (graceful) hands on the left side, and holding with the left ones snake and garland of *akṣa* अक्ष (beads) and drum, blue lotus as well as a *vijāpūra* ² (वैजपूरः lime) ;—extremely benign ;—or, engaged in another (kind of) contemplation brought about ³ by worship and study ; —and with eyes consisting of the three powers of volition, cognition and creation ⁴ ;—possessing the lunar digit, (which symbolises) knowledge ;—characterised by the lunar digit (कला) (i.e. sixteenth) year ⁵ ; (everything) beginning with the sacrificial string in connection with the image is to be made.

Thus is Sadāśiva (image) to be made well-dressed, coupled with Manōnmanī.⁶

¹ See Appendix II, 6.

² Lengthened for the sake of metre ? Contrast the dictum :—

अपि माष मषं कुर्यात् इन्द्रोभङ्गं न कारयेत् ।

³ संसिद्ध from सं + √साध = to go

सर्वे गत्यर्थकाः धातवाः ज्ञानार्थकाः

⁴ This shows that Sadāśiva is *Triguṇātma* or possessing the three attributes of *Sattva*, *Rajas* and *Tamas*.

⁵ *Kalā-varṣopalaṅkṛtam*. This shows that Sadāśiva is very probably represented as in the prime of youth. For the period of the greatest virility in human life seems, according to one later (Vaidyaka) Ayurvedic writer, to be taken as the sixteenth year, though Manu takes it to be the upper limit of childhood. Cf. the following line from भेषज्यरत्नावली by Gōvindadās, enumerating the efficacies of अश्वगन्धाष्टतम् —

एद्धो वृषायते स्त्रीषु नित्यं षोडशवर्षवत् ।

⁶ Appendix II (6a) —“ In this way should the goddess be made. It is agreed that her names are two, namely Manōnmanī and as Gaurī. But there is no difference between these two (they are identical). When the image of Sadāśiva is to be made, at that time, fashioned therein, she has the appellation, Manōnmanī, O purest among Brahmanas ; while she gets the name of Gaurī, when taken with other images (of Śiva), like the Nṛtta Dancing Śiva.

B. (DETAILED RITUALS FOR WORSHIP AND) DESCRIPTION OF
SADĀŚIVA । पुराणोक्ता सदाशिवपूजापद्धतिः¹ । (TRANSLATION²).

Seated (with feet), locked in *Padmāsana* posture; white; in the sixteenth year³; whose faces are five (in number); and holding with the tips of his own ten hands (the gestures of) protection (and) blessing, pike, trident, skull,—the omnipotent one, with right hands,—and with left ones snake, garland of heads, drum, blue lily and an excellent *Vijāpūra* (lime); with the three powers of volition, cognition and creation⁴; with three eyes, again, is Sadāśiva.

¹ See Appendix II (8).

² Only the *Dhyāna* portion is given here (Verses 53, 54 and 55)

³ Cf. *Kalā-varṣōpa-lakṣitam* in App. II (6) and p. 253, note 5, *supra*.

⁴ Cf. p. 253, note 4, *supra*.



Śaṭaśiva Image, Vaṅḡya Sahitya Parisat, I. (I.S.P.)



Sadaśiva Image, Vangīya Sāhitya Pariṣat, II. (V.S.P.)

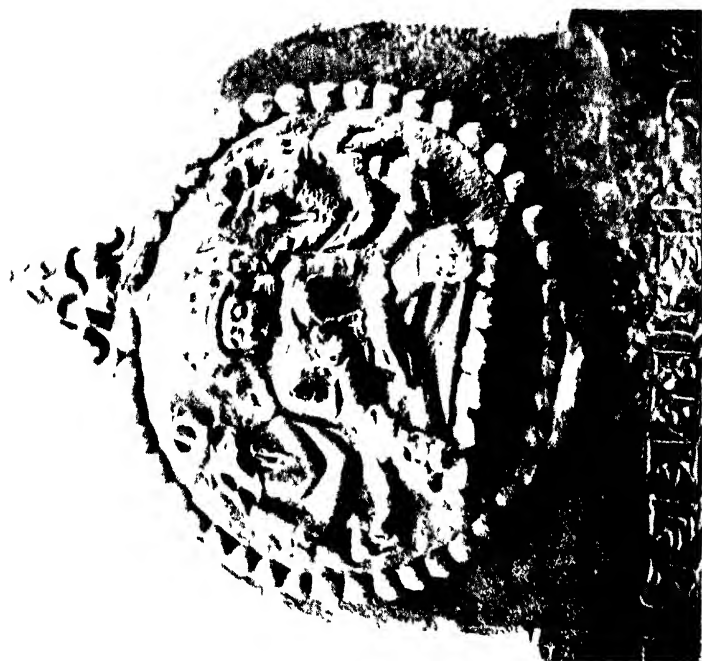


FIG. 2 Sadaśiva Mudrā. Tapandighu Plate — I S P



FIG. 1. Seal of Śiva on the 'Belal Sen Copperplate Grant, Pl. III, J 1 S B (1838), Vol. VII

Tracing by Nityut Nandlal Bose



FIG. 2. Sadāśiva Image.
(Miniature.)
(V.R.S.) 496
C(b)

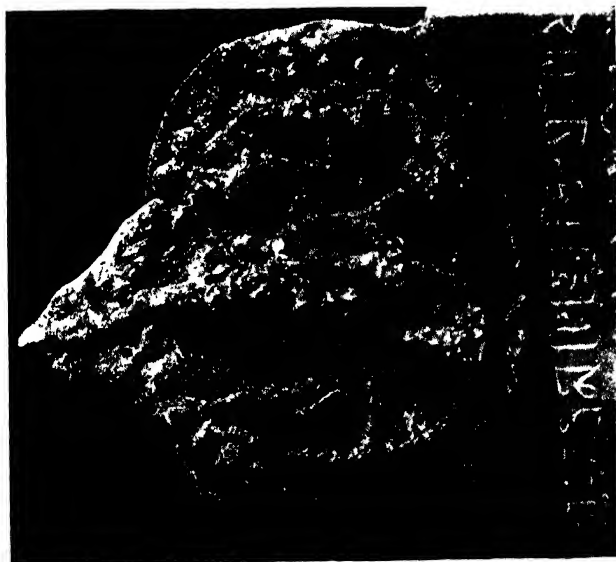


FIG. 1. Sadāśiva Mudra. The seal on the Anula (Dt Nadia, Bengal) Plate of Lakṣmana Sena. V.R.S.



Sadaśiva Image (V.R.S.) $\frac{C(b)^2}{180}$



FIG. 1. Sadāśiva Image. (V.R.S.) $\frac{C(b)3}{160}$.



FIG. 2. Sadāśiva Image. (V.R.S.) $\frac{C(b)1}{235}$.

Cosmic Persons and Human Universes in Indian Philosophy.

By GEORGE P. CONGER.

There is hardly any philosophical doctrine which is more widespread among all peoples and throughout all periods than the theory that the universe is like a man and that man is a microcosm, or little universe, exhibiting in miniature what is found in the macrocosm around him. In the philosophies of India such theories are numerous and sometimes of basic importance. So far as I am able to find, there has been no book or article concerning them; such an investigation should be undertaken, not merely for its historical interest, but in order to bring out points of relationship with other Oriental and Western philosophies.¹

The following statements are offered as a brief summary of results of some explorations in this field.² The conclusions are somewhat tentative and may need to be modified as more of the immense literature becomes available or as others take up such investigations, but I think the outstanding points can now be indicated with some confidence.

The material is difficult to interpret because of (i) the use of similes and metaphors as well as microcosmic theories. The universe is compared, for instance, not merely with man, but with the ocean, a tree, a city, a lute, and some of these comparisons offer little in the way of a metaphysical principle. It is sometimes a question whether the comparisons between the universe and man are meant to be taken more seriously than the others. On the whole, however, our material is plain, and, although the distinction cannot be made with complete precision, we are concerned with more or less detailed correlations.

¹ For microcosmic theories in Chinese philosophy, see, e.g., J. J. M. De Groot, *Universalism*, 1918, p. 10; K. C. Wong and L. T. Wu, *History of Chinese Medicine*, 1932, pp. 11f; W. Eberhard, in *Baessler Archiv*, 16, 1933, p. 3. For Persian and Greek philosophy, A. Götze, in *Zeitschr. für Ind. u. Iran.*, 2, 1923, pp. 60-98, 167-177. For Western philosophy, G. P. Conger, *Theories of Macrocosms and Microcosms in the History of Philosophy*, 1922. For Islam, the last named, and D. M. Donaldson, *The Shīvite Religion*, 1933, pp. 313f.

² In the preparation of this paper I have been helped by a number of scholars in India, to whom my thanks are due. The full list of them would be a long one; I must especially mention the valuable aid of Principal S. N. Dasgupta of the Sanskrit College, Calcutta, and Mr. Johan van Manen, Secretary of the Asiatic Society of Bengal.

usually analogies, between essential structures and processes in the universe, or conspicuous parts of it, and in man.

Again, (ii) there is a difficulty as to whether passages are to be interpreted allegorically or literally. Does '*agni*', for instance, mean 'fire' or 'the god of fire'? Sometimes this does not greatly matter, because natural processes and objects are deified, and both processes and deities are regarded as belonging to the macrocosm. In other cases, where such questions of interpretation are important, one must depend chiefly upon the context, understood however in accordance with a third difficulty still more subtle.

This is (iii) the fondness, in ages innocent of logic, for mystical identifications of objects which are thought to correspond to one another in any prominent way. The lines of analogy here never run quite parallel to one another; they either converge in an identity or are capable of thus converging if they are followed out to some of their more remote implications. This suggests the fourth and most general difficulty.—(iv) that which is due to the immense distance in time and culture, the incommensurabilities and surds of different psychologies and ontologies which render the meanings of many passages impossible to discern with clearness.

Finally there is a difficulty familiar to every student of Indian philosophy, (v) the difficulty of chronology. The tracing of developments involves some fixing of dates, or at least of chronological sequences. But the Indians have a way of writing without leaving indications of these things, as if their thoughts were destined to be timeless. About all that can be done in the way of tracing developments is to distinguish certain major classes of literature, which seem to indicate certain major periods, but which are so interrelated that at least some parts of almost any assigned sequence may be wrong.

The classification and sequence here adopted is that of (I) the Vedas; (II) the Brāhmaṇas; (III) the principal Upanishads; (IV) the Vedānta and Sāṃkhya systems; (V) the Bhagavad Gītā; (VI) the Āraka Saṃhitā; (VII) the Purāṇas, Tantras, and other sectarian literature; (VIII) the writings of mediæval mystics; (IX) the religions derived from Hinduism; (X) the more recent Indian philosophy developed in contact with the West. It will be noted that this sequence is only partially chronological.

I. THE VEDAS.

If the Black Yajur Veda (as the matrix of a Brāhmaṇa, but hardly a Brāhmaṇa as yet) is assigned to the first of our divisions, we have already in the Vedic literature five basic types of theories of macrocosm and microcosm. We shall indicate them by letters and discuss them briefly.

A. The universe is regarded as constituted like a person. The Rig Vedic hymns to Heaven as Father and Earth as Mother¹ show that something of this sort is very early. It requires even less poetic imagination to call the wind the breath of the all-encompassing Varuṇa.² The tendency to interpret the world in human terms appears most clearly in the cosmogonies of the later Rig, the Black Yajur, and the Atharva Veda, where the universe is said to have originated from the body of a World-Person (Puruṣa,³ Prajāpati,⁴ Brahman⁵), usually the victim of a cosmic sacrifice. Sometimes the derivation is traced from a World-Animal, the sacrificial horse.⁶ By common consent the prototype of all Indian macrocosmic, if not microcosmic, theories is seen in the cyclopean Puruṣa-Sūkta, one of the great monuments in the literature of the world.

B. Parts of man's body are correlated directly with parts of the universe in one of the Rig Veda's funeral hymns, where the eye of the dead man is bidden to go to the sun and his breath to the wind.⁷ These correlations, again, require only a little imagination and are somewhat more obvious than others used by later writers.⁸ Alternative procedures are also suggested in the Vedic passage, so the microcosmic theory here is only rudimentary.

A-B. Our first two types are combined when in the Atharva Veda it is said that the gods performed a sacrifice and arranged the body of man in correlation with parts of the universe.⁹

C. In the Black Yajur Veda there is pronounced ritualistic emphasis. There are a number of correlations (shading into, and difficult to distinguish from identifications) of (1) features of the prescribed sacrifices—altar,¹⁰ litany,¹¹ etc.—and (2) parts of the universe, often regarded as deities.¹² The passages are characteristically brief and apparently loosely strung together, like those of the earlier Brāhmaṇas. They do not go much beyond isolated and seemingly somewhat casual, fluid observations; plays upon words; traces of numerology; and imitative or sympathetic magic.

¹ RV, i. 112. 1; i. 185; ii. 32. 1; iv. 56; etc.

² *Ibid.*, vii. 87. 2.

³ *Ibid.*, x. 90; AV, xix. 6.

⁴ RV, x. 121; BL YV (Keith, *HOS*), vii. 1. 1. 4f. The latter is infused with ritualistic elements.

⁵ AV, x. 2. 21ff; x. 7. 32ff.

⁶ BL YV, vii. 5. 25. M. Bloomfield, *Atharva Veda*, 1899, p. 87, notes that every animal offered was magnified to cosmic proportions.

⁷ RV, x. 16. 3.

⁸ *E.g.*, *Bṛih. Up.*, iii. 2. 13; *Chand. Up.*, vi. 8. 6.

⁹ AV, xi. 8. 29ff.

¹⁰ BL YV, v. 2. 3. 5f; v. 3. 6; v. 4. 12; v. 4. 2. 2; v. 6. 7. 1f.

¹¹ *Ibid.*, v. 2. 5. 2; v. 2. 5. 5; v. 2. 6. 1.

¹² *Ibid.*, v. 4. 1. 1; v. 4. 3, end.

D. We find also a few correlations between (1) features of the prescribed sacrifices—altar,¹ utensils,² etc.—and (2) parts or processes of the human body. These may have been extended, if not suggested, by the use of parts of the body in measurements.³ The notion that man is a microcosm appears clearly when, after a ninefold correlation of the parts of the sling and of the human body, the priestly writer concludes ‘Verily, in himself he bears it’.⁴ But comparisons with the universe are more frequent : apparently in the Vedic period the macrocosmic interest predominates.⁵

E. There are a few correlations which may be said to combine C and D, and which compare (1) features of the sacrifice, (2) parts of the universe, and (3) parts or processes of the human body. Even in the White Yajur Veda, various layers of bricks are associated, if not identified, with bodily functions or organs (breath, mind, eye, ear, thought), with seasons, and with various meters.⁶ But the bodily functions here may well be superhuman : the next verse shows, again, that macrocosmic interests are more prominent. In a passage of the prose portion, bricks are associated with the earth, which is said to be speech : the atmosphere, said to be breath : and the sky, said to be the eye.⁷ Not alone the seasons, but also the four castes, are associated with parts of the ritual.⁸

II. THE BRĀHMAṆAS.

A. In the Brāhmaṇas, the universe is regarded as having arisen from the body or activity of a World-Person, usually called Prajāpati,⁹ but also Agni,¹⁰ Indra,¹¹ or Om.¹² The cosmogonic process begins to be regarded as emanational.¹³ The Person is not always the victim of a cosmic sacrifice, but some

¹ *Ibid.*, v. 2. 4. 3 ; v. 3. 2. 3.

² *Ibid.*, v. 6. 2.

³ *Ibid.*, v. 2. 5. 1.

⁴ *Ibid.*, v. 6. 9b.

⁵ Keith, *HOS*, 18, p. cxxvii, notices a passage (v. 3. 9. 1), which says that just as a man is held together by his sinews, so the fire is held together by certain bricks.

⁶ *Ibid.*, iv. 3. 2.

⁷ *Ibid.*, v. 6. 8f.

⁸ *Ibid.*, v. 6. 10. 1.

⁹ *Āit. Br.*, v. 32 : *Kaush. Br.*, v. 1. 10 : *Pañc. Br.*, vii. 10. 15 ; xx. 14. 2 : *JUB*, i. 46. 1ff ; iv. 25. 1f : *Sat. Br.*, vii. 1. 2. 7 : *JUB*, ii. 1. 1ff mentions ‘the gods’.

(*JUB*=The Jāimīniya or Talavakāra Upaniṣad Brāhmaṇa : Text, Translation, and Notes, by H. Oertel, *Journal of the American Oriental Society*, Sixteenth Volume, New Haven, 1894.)

¹⁰ *Pañc. Br.*, xxiv. 3. 5.

¹¹ *JUB*, i. 28. 2.

¹² *Gop. Br.* See M. Bloomfield, *op. cit.*, p. 109.

¹³ *Kaush. Br.*, vi. 10 : *JUB*, i. 23. i ; iii. 15. 4 ; iv. 22. 1.

features of the ritual, etc., are usually included in the accounts.¹ Of all the Brāhmaṇas, the Śatapatha in its cosmogony exhibits probably the greatest spread; it retains archaic features, such as Puruṣa,² the golden egg,³ and the sacrificial horse,⁴ but shows its late date when it maintains that parts of the Cosmic Person are themselves persons,⁵ and still more when it traces the beginnings of things to a Mind which performed sacrifices mentally, with 'fires which in truth are knowledge-built'.⁶

B. There are comparatively few correlations between parts of the universe and parts of man, independently of the ritual⁷; of course the ritual is never far from any Brahmanic teaching. Some of the passages seem more like Upanishadic than earlier Brahmanic thought, as when the Taittirīya Brāhmaṇa says that various gods, plants, trees, etc., are in various parts of man, and emphasizes the indwelling of man's *ātman* in Brahman.⁸ The Jaiminiya Upanishad Brāhmaṇa portrays the immortal Cosmic Person as of threefold nature ('white, black, person'), corresponding to the threefold eye of man.⁹

C. Eggeling thinks that the purport of Brahmanic sacrifice was the restoration of the once dismembered Lord of Creatures and reconstruction of the universe, and that this stimulated comparisons between the parts of the two.¹⁰ The Brāhmaṇas contain almost countless instances of such correlations, based on the numbers of verses, syllables, days, etc., in the ritual, and corresponding numbers ascribed to various cosmological facts and events.¹¹ Sometimes recourse is had to even more dubious etymologies and plays upon words. The old cosmogony is reflected when the Kaushitakī Brāhmaṇa correlates seventeen verses with 'the seventeenfold Prajāpati'; the fact that microcosmic relationships are definitely in mind is shown by the statement that 'that rite is beneficial which is commensurate with Prajāpati'.¹²

According to Eggeling, the construction of the fire altar offered a most conspicuous opportunity for the Śatapatha's

¹ *Pañc. Br.*, vi. 1. 6ff; *JUB*, i. 11. 1ff; iv. 9. 1ff; iv. 10. 1.

² *Sat. Br.*, v. 6. 1. 4ff.

³ *Ibid.*, v. 1. 6. 13.

⁴ *Ibid.*, v. 6. 4. 1.

⁵ *Ibid.*, vi. 1. 1. 3; v. 2. 2. 5.

⁶ *Ibid.*, v. 5. 3. 1ff (Eggeling).

⁷ *JUB*, ii. 11. 2ff. *Sat. Br.*, v. 3. 3. 8 continues the RV view that various parts of the dead man pass to various parts of the universe.

⁸ A. B. Keith, *Religion and Philosophy of the Veda and Upanishads* (HOS), 1925, p. 441.

⁹ *JUB*, i. 25. 7ff; i. 26. 1ff.

¹⁰ *SBE*, 43, p. xix.

¹¹ *Āit. Br.*, ii. 41; *Kaush. Br.*, vii. 5, viii. 8f; *Pañc. Br.*, iv. 1. 10ff, and *passim*; *Taitt. Br.*, iii. 2. 10; *JUB*, i. 19. 1; i. 31. 2ff; iv. 22. 9; *Sat. Br.*, iv. 5. 5. 12, and *passim*; *Gap. Br.*, i. 4. 11f (Bloomfield, *op. cit.*, p. 115). At least once (*S'ut. Br.*, iii. 2. 1. 1ff), the parallelism is not rigid.

¹² *Kaush. Br.*, viii. 2. Cf. *Pañc. Br.*, ii. 10. 5.

correlations between its ritual and the universe,¹ and perusal of the Śatapatha shows that the opportunity was by no means lost.

D. It appears that the Brāhmaṇas were more interested in correlating the sacrifice with the universe, or with the universe and man together, than in correlating the sacrifice with man alone. In the Kaushitaki and Jaiminiya Upanishad Brāhmaṇas, the last-named correlation is almost or quite absent.² In the Pañcaviṃśa Brāhmaṇa it occurs quite frequently; sometimes the sacrifice is correlated with the order of social classes rather than with man's body.³ The Aitareya correlates features of the sacrifice with some of man's mental functions.⁴ The Śatapatha declares that the fire altar, which was built in the form of a bird, exhibits numerous correspondences with parts of man's body,⁵ and there are other wearisome accounts of correspondences in terms of meters,⁶ offerings,⁷ syllables,⁸ etc. The Gopatha Brāhmaṇa correlates a certain sequence of ritualistic acts with the development of the human body.⁹

In spite of these and other instances of correlations between the ritual and man, other correlations remain more prominent, and the data of microcosmic theories agree with other data, that in the Brahmanic period interest in human personality was still for the most part submerged in the overwhelming universe and the almost equally overwhelming ritual.

E. When man does appear in the Brāhmaṇas, it is usually in the framework afforded by the universe and the ritual. The Kaushitaki and Pañcaviṃśa Brāhmaṇas offer few if any correlations of the three,¹⁰ but elsewhere we begin to meet, more or less completely expressed, the 'adhidaivata, adhyātma' formula—'so with regard to the deities; now with regard to the self'. In the Brahmanic and Upanishadic periods, this comes to be one of the clearest marks of the microcosmic theories. In the Brāhmaṇas it is frequently some feature of the ritual which is thus doubly correlated.¹¹ In the Jaiminiya Upanishad and the Śatapatha, various chants, meters, etc., are elaborately

¹ *SBE*, 43, p. xix.

² See *JUB*, i. 40. 4; iv. 23. 2.

³ *Pañc. Br.*, ii. 8. 2; vi. 6. 1; xv. 4. 8ff; xviii. 10. 8f. Cf. *Sat. Br.*, x. 4. 3. 22.

⁴ *Āit. Br.*, v. 25.

⁵ *Sat. Br.*, x. 1. 1. 9; x. 5. 4. 12, etc. Perhaps measurements in finger lengths (x. 2. 1. 2) suggested some of the comparisons.

⁶ *Ibid.*, iii. 1. 4. 23.

⁷ *Ibid.*, iii. 8. 1. 3; iii. 8. 4. 1.

⁸ *Ibid.*, x. 4. 1. 16f.

⁹ *Gop. Br.*, i. 3. 6ff (Bloomfield, *op. cit.*, p. 113).

¹⁰ See *Kaush. Br.*, ix. 3; *Pañc. Br.*, xxii. 4. 3f; xxv. 18. 4.

¹¹ *Āit. Br.*, ii. 40. See *Kaush. Br.*, ix. 3; *JUB*, i. 26. 1; i. 33. 5; i. 34. 1; i. 57. 7f; iii. 1. 14; iii. 4. 2f, 12; *Sat. Br.*, x. 1. 2. 2f; x. 3. 3. 6ff; x. 3. 5. 7ff.

identified both with parts of the universe and of man.¹ The Gopatha, with its interest in strengthening the position of the fourth Veda, seizes upon tetrads supposed to be characteristic both of the universe and of man.²

We must not trace the Indian microcosmic theories entirely to the sacrifice and its supposed significance: too many other elements, common to both Indian and non-Indian thought, are involved. But certainly nowhere in the world was sacrifice so prominent in the microcosmic theories. There seems to have been a reciprocal influence. On the one hand, attempts to order and explain the ritual laid hold, in almost haphazard fashion, on the materials furnished by primitive microcosmic theories. But, on the other hand, the appalling mass of detailed instructions about the various bricks, layers, utensils, chants, meters, etc., can hardly have been set up arbitrarily or in a process of trial and error. They must indicate that man's increasing concern with the universe and with himself was leading, in accordance with microcosmic ideas, to elaborations of the ritual in these peculiar ways.

This is not to say that any one understands the Brāhmanas³; they are as foreign to our world (at least, to the Western world) as are the Magellanic Clouds. But the microcosmic theories offer one of the important ways of studying them.

III. THE ĀRAṆYAKAS AND UPANISHADS.

The Aitareya Āraṇyaka and the Śāṅkhāyana Āraṇyaka are matrices of Upanishads and in their microcosmic theories exhibit characteristic transitions to the later Upanishadic thought.

A. The universe is regarded as having originated in the activity of a World-Person (Prajāpati,⁴ Ātman⁵). A secondary World-Person, the Virāj, is introduced.⁶ Ātman gains in importance and is increasingly recognized as intelligence.⁷

A-B. Once Prajāpati is said to have caused the deities to dwell in man in microcosmic fashion.⁸

B. The period is characterized by the lessened importance of Brahmanic sacrifices, which tend to be interpreted metaphorically or to be replaced by substitution meditations.⁹

¹ JUB. i. 2. 1; i. 9. 2; i. 33. 36; i. 57. 7; iii. 1. 12ff; iii. 4. 1ff; iv. 9. 1; iv. 10. 1; Sat. Br., vi. 2. 2. 3ff; x. 2. 4. 1ff; x. 2. 6ff; x. 3. 3. 1ff; x. 5. 2. 1ff; x. 5. 4. 2ff; xi. 1. 6. 25ff; xi. 2. 7. 1ff.

² Gop. Br., i. 2. 11; i. 3. 14 (Bloomfield, *op. cit.*, p. 105).

³ See H. Oldenburg, *Die Weltanschauung der Brahmana Texte*, 1919.

⁴ Ait. Ar. (Keith, 1909), iii. 2. 6; Śāṅkh. Ar. (Keith, 1908), viii. 1.

⁵ Ait. Ar., ii. 4. 1.

⁶ Ibid., ii. 4. 1.

⁷ Ait. Ar., ii. 1ff (Keith, p. 226, n. 1); v. 3. 2.

⁸ Śāṅkh. Ar., xi. 1.

⁹ Ibid., x. 1. 8.

With the weakening of the older ritual, the universe and man come to be compared with one another more directly, without regard for the ritual. The *adhidaivata-adhyātma* formula is explicitly used¹—repeatedly in the Śāṅkhāyana, where several different opinions are canvassed as to the details of a recognized teaching concerning the union of two entities in a third, the union occurring both with regard to the deities and with regard to man.² In these Āraṇyakas there are also said to be certain correspondences between the senses of man and their objects in the Virāj,³ or in the unity of the self⁴; such epistemological versions of microcosmic theories later become widely current, in India and elsewhere. Once the incorporeal conscious self is declared to be the same as the sun.⁵

C, D. E. What has been said concerning the lessened importance of the older ritual does not mean that the older correlations between sacrifice and universe entirely disappear.⁶ They are, however, less frequent than correlations between the sacrifice and the human body⁷—a fact which testifies to the increasing interest in man, although this is somewhat offset by the large number of correlations between the ritual, the universe, and man which still persist.⁸ There is a trace of increasing emphasis upon the psychological.⁹

The remarks just made apply with minor qualifications to the great Brihadāraṇyaka Upanishad. It retains rather more of the traditional cosmogony, or cosmogonies, but it also emphasizes the importance of *prāṇa* and *ātman*,¹⁰ and shows traces of psychologizing tendencies, subjectivism, and the identification of the self and the Absolute.¹¹

The Chāndogya Upanishad (A) describes the Universal Ātman in makanthropic terms,¹² and (A-B) interprets Brahman with reference both to the self and to the divinities.¹³ There are (B) a few direct correlations between the universe and man, but along with emphasis upon the inner aspect.¹⁴ Although the Upanishad declares that what people call sacrifice is really the chaste life of a student of sacred knowledge,¹⁵ it is close

¹ *Āit. Ar.*, iii. 1. 1.

² *Śāṅkh. Ar.*, iii. 2-6, 20.

³ *Āit. Ar.*, ii. 4. 1.

⁴ *Śāṅkh. Ar.*, v. 5.

⁵ *Āit. Ar.*, iii. 2. 4.

⁶ See *Āit. Ar.*, i. 2. 3; i. 3. 8; *Śāṅkh. Ar.*, i. 1.

⁷ See *Āit. Ar.*, ii. 3. 5ff; iii. 2. 1.

⁸ *Āit. Ar.*, ii, iii, iv; *Śāṅkh. Ar.*, viii. 1. 2.

⁹ *Śāṅkh. Ar.*, viii. 3.

¹⁰ *Brih. Up.* (Hume, *Thirteen Principal Upanishads*), i. 3; i. 5, 3-13, 22; ii. 5. 1-15.

¹¹ *Ibid.*, iii. 7; iii. 9. 10-25.

¹² *Chand. Up.* (Hume), v. 18. 2.

¹³ *Ibid.*, iii. 18. 1.

¹⁴ *Ibid.*, iii. 13. 7; iii. 14. 4; viii. 1. 2.

¹⁵ *Ibid.*, viii. 5. 1. Cf. iii. 16-17; v. 19-23.

enough to the ritual of the Sāma Veda to preserve (C) correlations between the sacrifice and the universe.¹ On the other hand, (D) correlations between the sacrifice and man hardly occur at all, except as parts of (E) correlations between all three classes of data, which again are numerous. Among the last named is a systematic arrangement of ten sets of parallels for the fivefold chant.²

In the other principal Upanishads are scores of passages which exhibit microcosmic views similar to those just mentioned. Occasionally there is a notable isolated passage, such as that in the Taittiriya concerning the process of unification or synthesis with regard to the material world, the luminaries, the process of knowledge, the process of generation, and the individual self.³ In the main, the trend of the Upanishads is unmistakable: the sacrifice as the epitome of the universe gives way to the self and the self is conceived in ways which anticipate the later Vedantic doctrines. Thus the Maitri Upanishad, though it contains several makanthropic cosmogonies,⁴ avers that the world is a mass of thought,⁵ that the person in the sun is identical with the person within,⁶ and that the man who knows the truth of some of these things meditates only in himself and sacrifices only in himself.⁷ The Mundaka derives the world from the dismembered limbs of a sacrificial victim, but declares this to be the inner soul of all.⁸

Doubtless many microcosmic passages in the Upanishads are there as mere survivals, the result of cultural inertia, but others seem to have been ascribed some positive use. As the older forms of sacrifice declined, theories of the correlation between man and the universe were retained as valuable aids to the seeker after knowledge of Brahman. The aid was not merely theoretical, but practical; over and over again it is declared that salvation or some attractive material benefit secondary to it, accrues to the man who knows the microcosmic relationship between parts of himself and parts of the universe. So the microcosmic theories served as a kind of scaffolding in man's first attempts to scale the absolute. But presently those who thought that they discerned more direct ways to the high goal tended to dispense with the scaffolding, and others who were more interested in the empirical world began to detect flaws in the scaffolding's construction. The result is, in the developing Vedānta philosophy, a gradual shifting of emphasis

¹ *Ibid.*, i. 11. 5-9; ii. 2. 1f; ii. 22. 1; iv. 11-13.

² *Ibid.*, ii. 11-20. (Cf. ii. 2-7.)

³ *Taitt. Up.* (Hume), i. 3. 1-3.

⁴ *Mait. Up.* (Hume), ii. 6; iii. 2; v. 2; vi. 3, 6, 15, 32.

⁵ *Ibid.*, vi. 16.

⁶ *Ibid.*, vi. 1; vi. 35.

⁷ *Ibid.*, vi. 9.

⁸ *Mund. Up.* (Hume), ii. 1. 4.

elsewhere and, in the developing Sāṃkhya philosophy, a transformation of the older theories until they are hardly recognizable.

This is not the place for a discussion of the relationships between Indian and Greek philosophies, but it is possible that investigations of microcosmic theories may sometime add a line on this intriguing subject. Any of the great philosophical concepts may spring up indigenously in any one of the great cultures, and there is certainly no clear evidence that the Greeks borrowed any of their doctrines from the Indians. In the absence of clear evidence, however, two or three minor observations appear to be in place. First, the earliest known microcosmic theories of India were older by centuries than those of Greece. Second, in such matters it is easier to infer borrowing from similarities in small and curious details than in great generalizations and major principles. Third, the earliest known expression interpretable as a microcosmic theory in Greek thought, the fragment of Anaximenes which says that just as our soul which is air holds the body together, so air encompasses the whole world, is easier to understand against an Indian background of *prāṇa*, *vāyu*, and *ātman*¹ than in its Greek context or lack of context. This, together with some features of Pythagoreanism and the myth of the charioteer in the Phaedrus² (rather, I think, than with the four elements of Empedocles, or the monism of Parmenides) would suggest that we might at least search for evidences of Preplatonic borrowings from the literature of late Upanishadic times.

For the purposes of this survey, the sources subsequent to the great Upanishads may be treated more briefly.

IV. THE VEDĀNTA AND SĀMĀKHYA SYSTEMS.

In the Vedānta system the view that man is a microcosm finds a kind of tacit acceptance, such as it does, thousands of years later, in Western idealism. Whenever the Supreme Reality is regarded as Mind, it is taken for granted that the mind of man is like it, but on a limited scale. The Vedānta Sūtras criticize some of the cruder forms of the old microcosmic theories, declaring that the notion that parts of the human body go at death to corresponding parts of the universe is only metaphorical.³ But the Sūtras use without hesitation the old formula about the deities and the self in a discussion of the material and the immaterial parts of Brahman.⁴ Śaṅkara, too, uses the formula to explain the all-pervadingness and the minuteness of the *prāṇa*,⁵ and some of his commentators,

¹ Cf., e.g., *Kaush. Up.*, ii. 12, 13.

² Cf. *Kath. Up.*, iii. 3 9.

³ *Vedānta Sūtras* (SBH, 5, pt. 1), iii. 1. 1. 4.

⁴ *Ibid.*, iii. 2. 11. 21.

⁵ Śaṅkara's *Commentary on Vedānta Sūtras*, ii. 4. 13 (SBE, 38, p. 91).

if not the master himself, are explicit and even elaborate in their microcosmic views.¹ The chief interest, however, is elsewhere. The advaitist is anxious not so much to correlate the soul and the universe as to identify them. For Śaṅkara, the sort of knowledge afforded by cosmic analogies helps self-knowledge, but when the nature of the self has been thoroughly perceived, no more desire is left for any other kind of knowledge.²

Vastly more interest in theories about the cosmos is shown in the Sāṃkhya philosophy. In its empiricism it is more chastened and responsible than the old priestly speculations, but in its development of Upanishadic materials it retains a few characteristics in which microcosmic theories are implicit. Interest in the sacrifice has so completely disappeared that we may dispense with several of the divisions used above and consider only the first two.

A. In the Sāṃkhya the old cosmogonies give way to that of Puruṣa and Prakṛiti, with elaborate and subtle theories concerning a complicated series of emanations from the latter.

B. In the course of this series of emanations, the senses and the objects of sense are said to originate in a correlated process,³ which affords a kind of organic realism, with such basic and essential relationships between man's mind and the objective world that the former is a microcosm of the latter.

Furthermore, the presence in all things of the three *guṇas*, *sattva*, *rajas*, and *tamas*, may at least be interpreted to afford a microcosmic ontology, although the difficulty here, as in other highly abstract ontologies, is to show how man in his possession of these qualities is to be singled out as a microcosm distinguished from other microcosms present everywhere. We have said that in the Sāṃkhya microcosmic theories are hardly recognizable. The low estate into which the old explicit theories now fall is reflected in the fact that the terms *adhyātmika* and *adhidaivika* are used in Viṣṇāna Bhikṣhu's commentary to indicate two of the three sources of those human pains which it is the avowed object of Sāṃkhya to allay.⁴

V. THE BHAGAVAD GĪTĀ.

Microcosmic conceptions are involved in the philosophical basis of the Gītā, in its emphasis on the three qualities familiar in the Sāṃkhya system, and in the theophany where the quasi-

¹ See A. M. Sastri's translation of Śaṅkara, *Dakṣināmūrti Stotra*, etc., Calcutta, 1885 and Madras, 1899, pp. 121f, 143.

² *Ātmabodha*, tr. A. Basu, 1885, pp. 7, 36, 45.

³ S. N. Dasgupta, *Yoga Philosophy in Relation to other Systems*, 1930, p. 182.

⁴ Viṣṇāna Bhikṣhu, *Commentary on Kapila's Sūtras*, i. 1 (SBH, 11, pt. 1).

human form of the Supreme Being is declared to contain the universe.¹ Such conceptions also may be inferred from the belief that Vishnu as the World-all becomes incarnate in human avatars; if this is the case, then even ordinary men must be in some respects like the universe. But on the whole, the *Gītā* is concerned with questions more immediately practical, and microcosmic theories, because of the very vastness of the considerations they require, tend to be left implicit in the larger framework within which the more practical issues have to be settled. The traditional terms are used with modified meanings: '*adhyātma*' is now a name for the Supreme Spirit, who as *adhidāva* is the supreme deity.²

VI. CĀRAKA.

Another source of microcosmic theories, in India as in Greece and China, is afforded by the ancient medical works. Such theories are basic for Cāraka, who says that the evolution and nature of man resembles the evolution of the universe. The courses of production, growth, decay, and destruction of the universe and of man are the same. The human body must be understood in terms of nature, and medicines are to be selected and used in accordance with microcosmic correlations.³

VII. THE PURĀṆAS, TANTRAS, ETC.

From the point of view of microcosmic theories, a vast number of writings can here be grouped together which in other respects would have to be considered separately. They spread through a long period of time—perhaps fifteen hundred years—but they overlap so much, both in supposed dates and in contents, that there is little opportunity to trace sequences of development. For our purposes, a number of minor Upanishads and much that comes to us under the name of Yoga can be included along with the Purāṇas, Tantras, Āgamas, and other sectarian writings. They all agree in working out in more or less popular form doctrines which are treated more critically in the classical systems. Sāṃkhya conceptions predominate, but not without admixture of Vedānta elements.⁴

A. The Puranic and some of the other cosmogonies retain

¹ *Bṛ.*, xi. 7.

² See J. Davies, translation, 1907, p. 3.

³ S. N. Dasgupta, General Introduction to Tantra Philosophy, in *A. Mukerjee Silver Jubilee Volumes*, 3, 1922, p. 267; *History of Indian Philosophy*, 2, pp. 302ff.

⁴ For some of the Shaivites, the universe develops by a process similar to that of our own experience (J. C. Chatterji, *Kashmir Shaivism*, 1914, p. 53: Cf. Sir J. Woodroffe, *Shakti and Shākta*, 1918, pp. 68f).

archaic elements, like the cosmic egg¹ and the articulation of the Cosmic Person,² but, especially in the sectarian writings, the Sāṃkhya Purusha and Prakṛiti tend to yield the fundamental place to the more highly personified Shiva and Shakti, or Viṣṇu and Lakṣmī,³ the divine pair whose relationships account for the world. Throughout this literature there are numerous sound- and letter-mysticisms, purporting to reveal occult solutions to the riddle of the cosmos.⁴

B. The chief key to the cosmos (sometimes called *brahmāṇḍa*) is man (sometimes called *pīṇḍāṇḍa*, or *pīṇḍa*), composed of the five elements,⁵ having senses corresponding to the objects of sense,⁶ and reproducing the structure of the macrocosm in a series of nervous centers, ganglia, or plexuses.⁷ Especially in the Tantric literature, the seeker is instructed to awaken the Shakti, or energy, which is conceived in the form of Kuṇḍalinī, the serpent or spiral power, asleep in a center of the pelvic generative region. The power, thus awakened, is

¹ *Garuḍa Purāṇa* (SBH, 9), xv, 3f; *Mārkaṇḍeya* (Pargiter, 1904), ci, 21ff; *Viṣṇu* (Dutt, 1894), i, 2-7; *Subala Uṇ*. (K. N. Aiyar, *Thirty Minor Upanishads*, 1914), ii: F. O. Schrader, *Introduction to the Pañcavātra and the Akṛbuddhya Saṃhitā*, 1916, pp. 28, 79ff; *Yogavāśiṣṭha* (V. L. Mitra, 1891, etc.), lxxiv, 3ff.

² *Bhāgarata Purāṇa* (Rau, 1928), i, 3, 3; *Mārkaṇḍeya*, xlii, 2; *Viṣṇu*, i, 2, 5f; *Subala Uṇ*., i-ii: F. O. Schrader, *op. cit.*, p. 86; *Yogavāśiṣṭha*, lxxiii, 57f; lxxiv, 6f.

³ *Viṣṇu Purāṇa*, i, 2; ii, 7; *Agni* (Dutt, 1903), cxxiii: Sir J. Woodroffe, *op. cit.*, *passim*; F. O. Schrader, *op. cit.*, pp. 29ff, 37, 68; K. S. Chatterji, *op. cit.*, pp. 43, 47, 65, 87, 92, 147; R. C. Temple, *The Word of Lalla the Prophetess* . . . 1924, pp. 67, 159.

⁴ *Mārkaṇḍeya Purāṇa*, xli, 9ff; *Agni*, cxxiii; *Yogatattva Uṇ*., (*Thirty Minor Upanishads*, p. 201); *Nāḍabindu Uṇ*. (*ibid.*, pp. 254ff): Sir J. Woodroffe, *op. cit.*, p. 173; *The Garland of Letters*, 1922, pp. ix, 205ff, 223, 255; R. C. Temple, *op. cit.*, p. 161. A remarkable example of letter-mysticism is recorded by Bhagavan Das, *The Science of the Sacred Word*, 3 vols., 1910-3.

⁵ *Garuḍa Purāṇa*, xv, 25-30; *Mahānirvāṇa Tantra* (Dutt, 1900), xxxi: various minor Upanishads in *Thirty Minor Upanishads*, pp. 45f; 113; 116; 197f; 237f. Ramdas, in his *Dakṣabodha*, concludes that this is the best way of understanding the microcosmic relationships of man and the universe (Prof. R. D. Ranade, conversation).

⁶ *Mārkaṇḍeya Purāṇa*, xlv; *Matsya* [SBH, 17(1)], iii, Sir J. Woodroffe, *Garland of Letters*, p. 205; *Yogavāśiṣṭha*, xviii, 5, 22; lxxii, 49; J. C. Chatterji, *op. cit.*, pp. 121ff.

⁷ *Viṣṇu Purāṇa*, ii, 7; *Agni*, cxxiii; *Garuḍa*, xv, 54-75; A. Avalon (pseud. Sir J. Woodroffe) *The Tantra of the Great Liberation*, 1913, pp. xxxvi, xlv; Sir J. Woodroffe, *Shakti and Shākta*, pp. 170f, where the doctrine of the microcosm (*Kṣudrabrahmāṇḍa*) is said to be fundamental for Tantric doctrines; R. C. Temple, *op. cit.*, pp. 152ff. See also Aurobindo Ghose, *Yogic Sadhan*, 1923, and Brahm Sankar Misra, *Discourses on Radhasoumi Faith*, 1929. For various opinions concerning anatomical localization of the centers, see V. G. Rele, *The Mysterious Kuṇḍalinī*, 1931, pp. 47, 80; R. C. Temple, *op. cit.*, pp. 152, 161; A. Ghose, *op. cit.*, pp. 4, 41; Sir J. Woodroffe, *Shakti and Shākta*, p. 172. Another microcosmic view is apparently that concerning the external and internal *liṅgas* of the *Liṅga Purāṇa*.

by further processes of Yogic concentration and exercises caused to mount upward through the various centers, until in the highest center it becomes united with the Supreme, and the man in this way wins control over the universe and identity with it.¹ This brief statement hardly reflects the wide prevalence and elaborate development of these views.

VIII. THE MEDIÆVAL MYSTICS.

A vast amount of material on Indian microcosmic theories is scattered through the works of the mediæval saints and mystics. Kabir, Nanak, Ravidas, Dadu, and their followers accepted the view that man's body is a microcosm, and in this period there were scores of other writers for whom such an idea was basic.²

IX. RELIGIONS DERIVED FROM HINDUISM.

Among the religions which have sprung from the parent stock of Hinduism, the microcosmic idea is least used by the Buddhists. Their interest, if not actually too nihilistic to retain either the world or the self, is primarily psychological and ethical rather than cosmological. Still, it can be said that according to Buddhist thought the universe is a psychocosm, and that man as a microcosm has in him everything that there is in the universe, precisely in order that he may overcome it.³

The Jains have compared the universe to an enormous man or woman,⁴ but they have remained aloof from Shaktism and have not let their beliefs about man as a microcosm become prominent.⁵ The doctrine is still less conspicuous in Sikhism.⁶

X. CONTEMPORARY THOUGHT.

A cross-section of contemporary Indian thought would reveal as still potent many of the later views above mentioned, especially those implied or expressed in the *Gītā*, the *Purāṇas*, and the sectarian writings. The microcosmic views are potent, but they tend also to be latent, while the emphasis, in Indian

¹ *Garuḍa Purāṇa*, xv. 76, 84ff: various minor Upanishads in *Thirty Minor Upanishads*, pp. 176; 197ff; 208; 238ff; 244; 260ff: Sir J. Woodroffe, *Shakti and Shākta*, pp. 180ff: R. C. Temple, *op. cit.*, pp. 67, 152ff.

² K. M. Sen, Appendix I to R. Tagore, *The Religion of Man*, 1931, pp. 210ff, and in conversation.

³ See F. Hoffman (Govinda Brahmachārya), *Abhidhammā Saṅgaha*, 1933, pp. 30, 38.

⁴ H. Glasenapp, *Der Jainismus*, 1925, p. 223.

⁵ R. C. Temple, *op. cit.*, p. 73.

⁶ There is a casual allusion in the *Granth*, Dhanaseri, Pipā, 1. I am indebted for this reference to Professor Jodh Singh.

metaphysics as in the West, goes in the direction of supernaturalisms and of idealisms.

There is occasional recognition of the widespread occurrence and importance of microcosmic theories for both Indian and non-Indian thought.¹ The theosophists have adopted at least some phases of the idea that man is a microcosm, as it it were their own.² Rabindranath Tagore and Bhagavan Das have recently emphasized social interpretations which regard the individual man somewhat as a microcosm of society. Here and there in philosophical writings the terms 'microcosm' and 'macrocosm' are encountered.³ As in the West, they are often used loosely, with little regard for their historical meanings.

CONCLUSION.

Indian religions and philosophies reveal the oldest sources of detailed and systematic microcosmic theories yet investigated. The development appears to have been quite indigenous and, especially as regards the Brahmanic sacrificial ritual, unique. If there is any question of root-connections elsewhere, it belongs to a period antedating the Vedic hymns in their present form. It is possible that Greek theories of man as a microcosm were influenced from Indian sources. In India, as in the West, the theories have a long and varied history; they flourish in ancient times, but more recent developments make them less prominent. On the whole, the Indian microcosmic theories are probably closer to present day Indian thought than the Western theories are to Western thought.

This suggests a word concerning the importance of such conceptions. Historically, in India as in the West, they carry along with them so much that is bizarre and impossible that the first impulse, for any present-day thinking, is to ignore their strange statements and laborious constructions. Yet they exhibit an astonishing persistence: in all the world they are perennial and protean. In India, when a myth is shaken, they appear in a ritual; when a ritual is abandoned, they become a part of an idealistic metaphysics; when an idealistic metaphysics submerges them, they become implicit or latent there and at the same time help in the development of rival theories of nature and of knowledge. In India as elsewhere, they constitute one of the great basic ways of attempting to under-

¹ See Bhagavan Das, *The Essential Unity of All Religions*, 1932, p. 105; P. D. Sastri, *Essentials of Eastern Philosophy*, 1928, p. 3.

² See A. Besant, *Introduction to Yoga*, 1913, p. 4; H. P. Blavatsky, *Isis Unveiled*, 1910, 1, pp. 28, 62, 212; C. Jinarajadasa, *First Principles of Theosophy*, 1921, p. 129.

³ See Swami Vivekananda, *Jñāna Yoga*, 1923, Chapters 8 and 9; S. Radhakrishnan, *The Reign of Religion in Contemporary Philosophy*, 1920, pp. 446f.

stand man's place in the universe. Of all the great avenues, this one is perhaps most often regarded as so completely filled with rubbish as to be not worth attempting to use. And yet, as the outcomes of other philosophies become apparent, the bewilderment grows—while all the time man still lives in the same old universe, which he must investigate, if not on the fire altar, then on the laboratory table, and if not by meditation, then by mathematics. Perhaps the great difficulty is that the newer investigations tend to lose a cosmic quality which after all is preserved in some of the surviving fragments of the old. The Brahmanic ritual and the Upanishadic speculations may be hopeless, and the Tantric rites and Yogic practices may be crude and revolting, but at any rate their aim is to make something cosmic out of man. When the sciences, instead of the superstitions, are comprehensively enlisted in this high endeavour, then the microcosmic theories may come into their own.¹ They may furnish to our views of the world an empirical body and substance which the more ephemeral idealisms lack, and a measure of unity and consistency which other philosophies have so long failed to find that they pretend to disdain to seek it.

*University of Minnesota,
Minneapolis.*

¹ I have developed some microcosmic theories more constructively in *A World of Epitomizations*, 1931.

Proceedings
of the
Asiatic Society of Bengal
for 1932.

[Journal and Proceedings of the Asiatic Society of Bengal.]

Proceedings, Asiatic Society of Bengal, 1932.

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PROCEEDINGS OF THE ANNUAL MEETING, 1933.

The Annual Meeting of the Asiatic Society of Bengal was held on Monday, the 6th February, 1933, at 5-30 P.M.

PRESENT :

HIS EXCELLENCY THE RIGHT HON'BLE SIR JOHN ANDERSON, P.C., G.C.B., G.C.I.E., Governor of Bengal, Patron.

THE HON'BLE MR. JUSTICE C. C. GHOSE, KT., BARRISTER-AT-LAW, President, in the Chair.

Members :

Ali, Mr. A. F. M. Abdul	Hobbs, Mr. H.
Asadullah, Mr. K. M.	Hora, Dr. S. L.
Barwell, Lt.-Col. N.	Hosain, Dr. M. Hidayat
Basu, The Hon'ble Mr. B. K.	Hubert, Mr. Otto.
Basu, Mr. N. M.	Hughes, Mr. A.
Basu, Mr. N. N.	Iyer, Mr. M. Subrahmanya
Bhattacharjee, Dr. U. C.	Jain, Mr. C. L.
Bhattacharyya, Mr. Bisweswar	Kanjilal, Mr. M. N.
Bhose, Mr. J. C.	Law, Dr. S. C.
Biswas, Mr. K.	Lemmon, Mr. R. D.
Bose, Mr. H. M.	Mahindra, Mr. K. C.
Bose, Mr. M. M.	Mallik, The Hon'ble Mr. Justice
Brahmachari, Dr. U. N.	S. C.
Brahmachary, Rai Bahadur S. C.	Manen, Mr. Johan van
Chakravarty, Mr. K.	Matthias, Mr. O. G.
Chatterjee, Mr. P. P.	Mitra, Mr. J. C.
Chatterji, Dr. S. K.	Mitter, The Hon'ble Mr. Justice
Chopra, Dr. B. N.	D. N.
Cleghorn, Miss M. L. C.	Mookerjee, Sir R. N.
Darbari, Mr. M. D.	Nandy, Maharajah Srischandra
Datta, Mr. H. N.	Olpadvala, Mr. E. S.
De, Mr. A. C.	Perier, His Grace The Most
De, Lt.-Col. J. C.	Rev. F.
Deb, Kumar H. K.	Prashad, Dr. Bainsi
Dikshit, Mr. K. N.	Pruthi, Dr. H. S.
Driver, Mr. D. C.	Rahman, Mr. S. K.
Fernor, Dr. L. L.	Ray, Dr. H. C.
Fawcus, Mr. L. R.	Sadeq, Shifa-ul-Mulk H.
Ghose, The Hon'ble Mr. Justice	Seth, Mr. M. J.
M. C.	Sewell, Lt.-Col. R. B. S.
Ghose, Mr. T. P.	Singhi, Mr. Bahadur Singh
Ghosh, Dr. P. N.	Stagg, Lt.-Col. M.
Ghosh, Mr. S. C.	Suhrawardy, Sir Zahid
Ghoshal, Dr. U. N.	Tyson, Mr. J. D.
Guha, Dr. B. S.	Wadia, Mr. D. N.
Haq, Mr. M. Mahfuz-ul	Wats, Major R. C.

and many others.

Visitors :

Ali, The Hon'ble Mr. Justice	Longden, Mr. S.
T. Ameer	Mackenzie, Miss H. J.
Badridass, Mr.	MacLeod, Miss J.
Barwell, Mrs. Marion	Martin, Mr. B. W.
Basak, Dr. M. N.	Marzello, Sgr. Antonio
Bauwens, Rev. M., S.J.	Matthias, Mrs. O. G.
Beamish, Mr. S.	McConnell, Mr. T. M.
Bhattacharya, Mr. Bhabatosh	McConnell, Mrs., I. M.
Bhattacharyya, Mr. N. C.	Mehta, Rai Bahadur N. L.
Biswas, Mr. P. C.	Menon, Capt. S. K.
Bhose, Mr. S.	Mitra, Dr. P.
Blank, Mr. A. L.	Mookerjee, Dr. H. K.
Blank, Mrs.	Mukherjee, Mr. Moni
Bogdanov, Mr. L.	Mulder, Mr. G. J.
Bogdanov, Mrs.	Mulder, Mrs.
Boven, Mr. A. J. van	Nazim-ud-Din, The Hon'ble Mr. K.
Brachio, Mr. F. M.	Nazir, Mr. S. S.
Brachio, Mr. J. J. A.	Ogle, Miss M. L.
Brachio, Mrs.	Paul, Mr. K. S.
Brahmachari, Dr. P.	Paul, Sir H. S.
Carson, Mr. A. P.	Penrose, Mr. R. H.
Chakravarti, Mr. T.	Penrose, Mrs.
Chakravarti, Mr. G. D.	Rahman Bismil, Mr. S. A.
Chatterjee, Mr. M.	Ray, Dr. H. N.
Chatterjee, Mr. Manomohun	Reid, Mr. R. N.
Colson, Mr. L. H.	Reid, Mrs. A. H.
Colson, Mrs.	Saraswati, Mr. S. K.
Danjon, Mr. M. D. A.	Searpa, Dr. Gino
Dorjee, Mr. Tashi	Schelvis, Rev. A., S.J.
Dutt, Mr. A.	Sen, Mr. B. R.
Fawcus, Mrs.	Sen, Mr. N. C.
Field, Miss.	Sen, Miss
Ghose, Mr. D.	Sen, Mrs.
Ghose, The Hon'ble Mr. Justice	Seth, Mr. A. M.
S. K.	Shaw, Mr. U. D.
Ghosh, Mr. D. C.	Simha, Mr. R. K.
Giel, Mr. H.	Subharwal, Mr. B. L.
Gow, Lt.-Col. P. F.	Subharwal, Mr. D. K.
Griffin, Mr. B.	Swaminathan, Mr. N.
Hamilton-Brooks, Mrs. N.	Tagore, Mr. A. N.
Hoare, Mrs. N.	Tondup, Mr. K. T.
Hoque, Mr. Md. Sadul	Turbett, Capt. L. W.
Hosain, Prince Akram	Visser, Mr. Ph. C.
Jack, The Hon'ble Mr. Justice	Vissiere, M. A.
R. E.	West, Mr. W. D.
Johnstone, Mrs. A. L.	Wilkinson, Mr. H. R.
Khan, Mr. M. A.	Wilmer, Mr. D. H.
Knight, Rev. P.	Wilmer, Mrs.
Knight, Mrs.	

and many others.

The President ordered the distribution of the voting papers for the election of Officers and Members of Council for 1933, as well as the voting papers for the election of Ordinary Fellows proposed by Council, and appointed Lt.-Col. M. Stagg and Mr. H. Hobbs to be scrutineers.

The Annual Report was then presented. (See page lii.)

At 5-55 P.M., the President vacated the chair, and invited Lt.-Col. R. B. Seymour Sewell to occupy it during his absence from the room.

The President, the Treasurer, and the General Secretary, then left the meeting room to receive His Excellency the Right Hon'ble Sir John Anderson, Governor of Bengal, Patron of the Society, at the entrance of the building.

On the arrival of the Patron at 6 P.M., the President introduced the Council to him, and after a brief word of welcome invited him to occupy the chair.

After his installation in the chair, the Patron called on the retiring President to read his Annual Address.

The retiring President then addressed the meeting. (See page ix.)

The retiring President then called upon the scrutineers to report, and announced the results of the Council Election. (See page xxxviii.)

The President for 1933 after having thanked the Society for his re-election invited the Patron, His Excellency the Governor of Bengal, to address the meeting.

The Patron then addressed the meeting. (See page xxxiv.)

After the termination of the Patron's Address, the President for 1933 proposed a vote of thanks to the Patron.

The vote of thanks having been adopted by acclamation, the President made the following announcements :—

'I have now the great pleasure to announce that after having heard the report of the scrutineers, I declare the following Ordinary Members :—

Mr. Percy Brown,
Mr. O. C. Gangoly,
Rai Bahadur S. R. Kashyap.
Mr. Ghulam Yazdani.

duly elected as Ordinary Fellows of the Asiatic Society of Bengal.

I have next to announce that papers from four candidates have been received in competition for the Elliott Prize for Scientific Research for the year 1932, and the Trustees have judged the papers of one candidate deserving of the prize.

The Elliott Prize for the year has accordingly been awarded to Professor P. N. Das-Gupta, at present of the Science College, Patna, for meritorious contributions to the subject of Mathematics.

The prize for 1933 will be for Chemistry, regarding which a detailed announcement will be published in the *Calcutta Gazette* and the *Bihar and Orissa Gazette*.

My next announcement regards the Sir William Jones Medal. This medal is awarded biennially for conspicuously important Asiatic Researches with reference alternately to (1) Science, including Medicine and (2) Philosophy, Literature

and History. This year the medal is for Literature and is awarded to Professor Dr. C. Snouck Hurgronje, formerly Professor of Arabic in the Leyden University.

Dr. Hurgronje is an Honorary Fellow of the Asiatic Society of Bengal and an authority on all branches of Islamic learning.'

The President requested His Excellency to hand over the medal to Mr. Ph. C. Visser, Consul-General for the Netherlands.

The Patron then called upon Mr. Ph. C. Visser to receive the medal on behalf of Dr. Hurgronje in the latter's absence and requested him to forward the medal to the recipient, together with his and the Society's best congratulations.

The President then made the following announcement regarding the Joy Gobind Law Medal :—

'My next announcement regards the Joy Gobind Law Medal. The medal is awarded every three years for conspicuously important contributions to the knowledge of Zoology in Asia. This year the medal is awarded to Dr. Ernst J. O. Hartert, until lately Director of the Rothschild Zoological Museum, Tring, Herts, England.'

The President requested His Excellency to hand over the medal to Lt.-Col. R. B. S. Sewell, Director, Zoological Survey of India.

The Patron then called upon Col. Sewell to receive the medal on behalf of Dr. Hartert in the latter's absence and requested him to forward the medal to the recipient, together with his and the Society's best congratulations.

After these announcements the President declared the Annual Meeting to be dissolved with the following words :—

'LADIES AND GENTLEMEN,

In declaring the Annual Meeting dissolved I invite the non-members present to examine a collection of exhibits at the other end of the hall, and the Members present to re-assemble round this table for an Ordinary Monthly Meeting for the election of Members and transaction of business.'

After this final announcement the President for 1933 conducted His Excellency the Patron to inspect the exhibits. (See page xxix.)

At 7 P.M., the Patron left the meeting, conducted by the President, after which an Ordinary Monthly Meeting was held for the transaction of business by members, whilst the visitors inspected the exhibits.

ANNUAL ADDRESS, 1932-33.

YOUR EXCELLENCY, LADIES, AND GENTLEMEN,

Before proceeding to the subject of my Presidential Address I wish, as is usual in these meetings, to refer to a few matters concerning the Society with regard to the year which lies behind us.

I have, first of all, to refer with very great regret to the death during the year of our Honorary Fellow, Professor Caland of Utrecht, the foremost authority in the West on Hindu Smriti. We further suffered a great loss through the death of Mr. B. De, an editor in our *Bibliotheca Indica* series and for some years a Member of the Council of the Society. We also lost through death Mr. Vepin Chandra Rai, our senior Member who joined this Society as late back as 1880. The sad circumstances of the death of Mr. R. Douglas, a recent Member, are particularly regretted. Mr. Douglas had already greatly distinguished himself in the I.C.S.; it was a tragic irony of fate that he should have been done to death for no other discoverable reason except that he was an alien in birth.

Amongst the publications of the year two are outstanding, namely, that of the final fascicle of Sir George Grierson's great Kashmiri Dictionary and the sixth part of Colonel Sewell's Monograph on Geographic and Oceanographic Research in Indian Waters, which is now rapidly approaching its completion.

During the year the Society was enriched by two works of art added to its gallery of busts, both executed by the Italian sculptor, Signor A. Marzollo, and representing Sir George Grierson, our veteran Member and Honorary Fellow, and Dr. Brahmachari, one of our late Presidents.

We were honoured by the acceptance by the Right Hon'ble Sir John Anderson of the office of Patron to the Society and we are grateful to him for his presence amongst us here to-day.

We regret that India will shortly lose Lieutenant-Colonel R. B. Seymour Sewell who is retiring from his post as Director of the Zoological Survey of India and that, consequently, we shall not have the benefit of the presence amongst us and of the sagacious advice of our late President in future. It is a matter of profound satisfaction to know that he has been appointed to lead the Sir John Murray Oceanographic Expedition to the Arabian Sea so that his scientific career is far from being closed.

The membership of the Society decreased during the year and the financial crisis in the world reacted very severely on the finances of the Society.

In our Annual Report stress has been laid on the various financial problems before the Society to which I would request our Members and wellwishers to give due consideration.

With these general remarks I now proceed to the subject of my address.

THE EVOLUTION OF JURISPRUDENCE AND OF JUSTICE
ACCORDING TO BRITISH IDEAS IN INDIA.

In addressing you as President for the year of the Asiatic Society of Bengal, I have had to consider long and very seriously the subject I should choose for my Presidential Address. Several difficulties beset me. In the first place, I am not a man of science as most of my predecessors had been, nor am I a person who would have been considered fit by my predecessors to occupy the Presidential Chair of the Asiatic Society. I have had only a very slight inoculation with what is called 'the academic virus' and the only claim I can put forward is a small working acquaintance with the system or rather the systems of law which is administered in this Presidency. But thus I may fairly lay claim that all my life I have been a humble student of history and specially of Indian History. This has been a subject of fascinating interest to me and I finally decided that the topic of my address to you this afternoon should be a historical one. And in this connection, I trust, Your Excellency will allow me to voice the abiding regret of the men of my generation that history as it used to be taught in the days when we were in school and college is no longer taught in these days. History in those far-off days was never relegated to what is called an optional subject and everyone had to show a certain amount of proficiency in the histories of Greece and Rome and of Great Britain and India. To-day the situation has undergone such a change that it fills us with alarm and you come across men poured forth into the world unacquainted with the history and political geography of India, leave aside those of the British Isles. I said just now that I decided to choose a historical topic and I have chosen as the subject of my address 'The Evolution of Jurisprudence and of Justice according to British ideas in India'. This subject, I am aware, cannot be fully dealt with within the compass of an afternoon address; but it is a subject which came easily to me and I have been encouraged by friends to entertain the hope that it might not prove uninteresting at a time when the Indian Constitution is in the melting pot and when the new dispensation is about to be ushered in.

The earliest power emanating from the Crown for the administration of justice in India dates as far back as the reign of James I, who, by Charter granted in the year 1622, authorised

the East India Company to 'chastise and correct all English persons residing in the East Indies and committing any misdemeanour, either with martial law or otherwise'.

The first authority, however, for the introduction of British law into India was granted by Charles II, who, by Royal Charter dated the 3rd of April, 1661, gave to the Governor and Council of the several places belonging to the Company in the East Indies power to exercise therein civil and criminal jurisdiction 'according to the laws of the kingdom'; and in the subsequent grants to the Company of the islands of Bombay and St. Helena, in the years 1669 and 1674, the Company were empowered to make laws and constitutions for the good government of the islands and their inhabitants; and to impose punishments and penalties, extending to the taking away life or member when the quality of the offence should require it, so that the punishment and penalties were consonant to reason, and not repugnant to, but as near as might be agreeable to the laws of England. The Governor and Company, or Governor and Committees of the Company, were also empowered to appoint Governors and other agents for the said islands, to be invested with a power of ruling, correcting, and punishing His Majesty's subjects in the said islands, according to justice, by Courts, Sessions and other forms of judicature, like those established in England, by such Judges and officers as should be delegated for that purpose.

An amended Charter was granted by Charles II to the Company in 1683, which empowered the Governor and Council to establish Courts of Judicature at such places as they might appoint, to consist of one person learned in the civil laws, and two merchants, and to decide according to equity and good conscience, and according to the laws and customs of merchants.

These provisions were continued in the Charter granted by James II, in 1686; and a similar power was given to the new East India Company by the Charter of 10 William III. granted in September, 1698.

In the year 1726, the Court of Directors represented by petition to King George the First—'That there was great want at Madras, Fort William, and Bombay, of a proper and competent power and authority for the more speedy and effectual administering of justice in civil causes, and for the trying and punishing of capital and other criminal offences and misdemeanours'. Accordingly, the then existing Courts were superseded, and the East India Company were empowered by Royal Charter, granted in 1726 in the 13th year of the reign of King George I, to establish at each of the three settlements a Court, consisting of a Mayor and nine Aldermen, to be a Court of Record, and to try, hear, and determine all civil suits, actions, and pleas between party and party. From these

Courts an appeal lay to the Governors and Councils, and thence to the King in Council, in causes involving sums above the amount of 1,000 pagodas. This same Charter also constituted Courts of Oyer and Terminer at each settlement, consisting of the Governors and Councils, for the trial of all offences, except high treason, committed within the towns of Madras, Bombay, and Calcutta, or within any of the Factories subordinate thereto, or within ten miles of the same; and the Governors and Councils were constituted Justices of the Peace, and were authorised to hold Quarter Sessions. Under this Charter all the common and statute law at that time extant in England was introduced into the Presidency towns.

The Mayor's Court, which had been established at Madras, was abolished on the capture of that place by the French under Labourdonnais in the year 1746; but the town having been restored to the English in 1749 by the treaty of Aix-la-Chapelle, the Directors of the East India Company represented to the King in Council that 'it would be a great encouragement to persons to come and settle at that place, if a proper and competent judicial authority were established there'; and further, that it had been found by experience that there were some defects in the Charter of 1726.

Under these circumstances, King George II granted a new Charter in the year 1753, re-establishing the Mayors' Courts at Madras, Bombay, and Calcutta, with some not very material alterations. By this Charter these Courts were limited in their civil jurisdiction to suits between persons not inhabitants of the said several towns; and suits between inhabitants were directed not to be entertained by the Mayors' Courts unless by consent of the parties. At the same time, and by the same Charter Courts of Requests were established at Madras, Bombay, and Fort William, for the determination of suits involving small pecuniary amounts.

The Seventh Report of the Committee of Secrecy, appointed to enquire into the state of the East India Company, after a detailed description of the Courts of Judicature in Bengal, observed upon the constitution and defects of the Mayor's Court, and remarked, 'that although it was bound to judge, at least where Europeans are concerned, according to the laws of England, yet the Judges were not required to be, and in fact had never been, persons educated in the knowledge of those laws by which they must decide; and that the Judges were justly sensible of their own deficiencies; and that they had therefore frequently applied to the Court of Directors to lay particular points respecting their jurisdiction before counsel, and to transmit the opinion of such counsel to be the guide of their conduct'.

Upon this Report the 13th Geo. III. c. 63 was passed. The Bill had met with considerable opposition on the part of

the Company ; it was carried by an overwhelming majority in the House of Commons on the 10th of June, 1773, and on the 20th of June it passed the Lords without opposition, and received the Royal Assent on the following day. The 13th section of the Statute empowered His Majesty to erect and establish a Supreme Court of Judicature at Fort William in Bengal, to consist of a Chief Justice and three other Judges, being barristers of England or Ireland of not less than five years' standing to be named and appointed from time to time by His Majesty, his heirs and successors. The same section declared that the said Supreme Court should have full power and authority to exercise and perform all Civil, Criminal, Admiralty and Ecclesiastical jurisdiction : and to form and establish such rules of practice, and such rules for the process of the said Court, and to do all such other things as should be found necessary for the administration of justice and the due execution of all or any of the powers which, by the said Charter, should or might be granted or committed to the said Court : and also should be at all times a Court of Record, and should be a Court of Oyer and Terminer, and Gaol Delivery, in and for the said town of Calcutta and Factory of Fort William in Bengal aforesaid, and the limits thereof, and the Factories subordinate thereto. The Governor-General and Council, and the Judges of the Supreme Court were, by the 38th section of the same Act, authorised to act as Justices of the Peace, and to hold Quarter Sessions.

The Supreme Court of Judicature at Fort William in Bengal was accordingly established under the above Statute by Royal Charter dated the 26th of March, 1774. Three days thereafter, the Chief Justice designate of the Supreme Court, Elijah Impey, represented to the Prime Minister Lord North that steps should be taken so that the inhabitants of the Presidency of Fort William might be suitably impressed with the dignity and power of the Supreme Court when it came into existence and that as an outward symbol of the dignity of the Supreme Court the head thereof should arrive in India after he had been Knighted by the King. This incident has been recently brought out in the correspondence of Geo. III and the following letters will doubtless prove interesting reading.

No. 1432.—Lord North to the King.

(29th March, 1774.)

Lord North has the honour of informing his Majesty, that Mr. Impey, who will be presented to his Majesty to-day in order to take leave, has express'd a desire of being Knighted. Lord North is afraid that he may not be at court, time enough this morning to take his Majesty's pleasure before the Levee,

and has therefore presumed to trouble his Majesty with this note.

L^d North has the honour of sending his Majesty the translation of the East India Act into Persian which has been made for the use of the Indians.

Downing Street Thursday morn^g

No. 1433.—The King to Lord North.

Printed. Donne 1. 179.

Lord North—The Knighting Mr. Impey on his going to India as he is desirous of that honour cannot meet with the least objection from Me : I trust the chief difficulties relating to India are now in fair train to be removed.

Shortly after the establishment of the Supreme Court disputes and differences arose between the Supreme Court and the Governor-General and his Council, and Parliament had to interfere. The Judges of the Supreme Court observed in 1830 ' that the Legislature had passed the Act of the 13th Geo. III. c. 63 without fully investigating what it was that they were legislating about ; and that if the Act did not say more than was meant, it seemed at least to have said more than was well understood '.

The Legislature accordingly intervened ; and by the preamble to the 21st Geo. III. c. 70, and sections 2, 8, 9, and 10 of that Act explained and defined the jurisdiction of the Supreme Court, declaring that the said Court had no jurisdiction over the Governor-General and Council for any act or order made or done by them in their public capacity ; that if any inhabitants of India should be impleaded in the Supreme Court for any act done by order of the Governor and Council in writing, the said order might be given in evidence under the general issue, and should amount to a sufficient justification ; that the Supreme Court should have no jurisdiction in any matter concerning the revenue, or concerning any act or acts ordered or done in the collection thereof, according to the usage and practice of the country, or the Regulations of the Governor-General and Council ; that no person should be subject to the jurisdiction of the Court by reason of being a landowner, landholder, or farmer of land or of land-rent ; that no person should be so subject to the jurisdiction of the said Court, by reason of his being employed by the Company or by the Governor-General and Council, or on account of his being employed by a native of Great Britain, in any matter of dealing or contract between party or parties, except in actions for wrongs or trespasses, and also except in civil suits by agreement of parties, in writing to submit the same to the decision of the said Court. Section 17 of this important Act also reserved their peculiar laws to

Hindus and Muhammadans in certain civil matters, and the 24th section provided that no action for wrong or injury should lie in the Supreme Court against any person whatsoever exercising a judicial office in the Country Courts, for any judgment, decree or order of the said Court, nor against any person for any act done by or in virtue of the order of the said Court.

The Supreme Court was vested with five distinct jurisdictions, Civil, Criminal, Equity, Ecclesiastical and Admiralty, and the law which obtained in the Supreme Court might be classed under seven distinct heads: (1) The common law of England as it prevailed in 1726, (2) the Statute law of England as it prevailed in 1726 (*N.B.*—These two were subject to not having been altered by Statute especially extending to India or by Acts of the Legislative Council of India), (3) Statute law especially extending to India enacted since 1726, (4) the Civil law as it obtained in the Ecclesiastical and Admiralty Courts in England, (5) Regulations made by the Governor-General in Council, (6) the personal law of the Hindus, (7) the personal law of the Muhammadans.

The question of the development of the Supreme Courts is intimately connected with the development of the legislature in India but it will take me far away to describe in detail the latter. I will therefore content myself by touching on the inter-connection between the two at certain definite periods. In 1813 or thereabouts each of the three Presidencies in India enjoyed equal legislative powers; though the Governor-General possessed a legal right of veto over the legislation of the subordinate governments, it had, in fact, been little exercised. Thus had come into existence three series of regulations, as these enactments were called, frequently ill-drawn, for they had been drafted by inexperienced persons with little skilled advice: frequently conflicting, in some cases as a result of varying conditions, but in others merely by accident; and in all cases enforceable only in the Company's courts because they had never been submitted to and registered by the King's courts. Besides these were the certain bodies of Muslim and Hindu law, uncertain because of a variety of texts and interpretations, and still more uncertain because of the varying application which they received in the courts themselves. Lastly came English statute and common law and equity, applied by the King's courts. These conflicting series of laws were enforceable by two different and generally hostile judicatures, with ill-defined jurisdictions. In general the King's courts exercised jurisdiction within the limits of the presidency towns of Calcutta, Bombay, and Madras while the Company's courts exercised jurisdiction over the dependent territories. But apart from this territorial jurisdiction, the King's courts possessed a personal jurisdiction over British-born subjects, in some cases involving jurisdiction over Indian-born subjects.

This particular aspect of the matter was clearly destined to be of growing importance. The doors of India, as the Directors said, were to be 'unsealed for the first time to British subjects of European birth'. Englishmen, who had till then resided in India on sufferance, were to acquire a right to reside and even to acquire land there. Since the Company's trade was to cease, a large number of merchants and traders were expected to settle in India to take advantage of the change. It was evidently inexpedient that the two classes of subjects, Indian and English, should continue to live under separate laws administered by separate courts or that the latter when accused of wronging the former or accusing the former of wrong, should be able to insist on the issue being tried by a strange, unsuitable and probably very distant court.

For these various and cogent reasons it was resolved to modify the legislative authority in India, to extend its legislative competence, and to prepare for a general reform of the judicial system. The subordinate governments, it was felt, should lose their legislative authority altogether—a measure which appears the more natural when it is remembered that it was also intended at first to abolish their councils. The existence of three legislatures had added much to the complexity of the legal system, the simplification of which would be aided by concentrating all legislative authority in a single body. This change was also supported by the proposed extension of power, which Parliament would concede least unreadily to the Governor-General and his Council. It was therefore decided about 1833 to transfer all power of making laws to them; and it was thought that the need of special laws to suit local peculiarities would be sufficiently met by empowering the presidency governments to submit to the Governor-General and Council draft laws to be enacted or not as might seem best.

The powers granted to the Governor-General and Council were much wider than any till then entrusted to an Indian legislature. They could make laws to repeal, amend, or alter any laws or regulations whatever now in force or hereafter to be in force in the said territories....and to make laws and regulations for all persons, whether British or native, foreigners or others, and for all courts of justice, whether established by His Majesty's charters or otherwise, and the jurisdiction thereof, except that they could not modify the new act, the mutiny act, any future act of parliament relating to India, or the sovereignty of the crown. But apart from this limitation all their acts should possess 'the same force and effect' as any act of parliament, and 'shall be taken notice of by all courts of justice whatsoever within the said territories'.

These were full powers for the Indian legislature. Their particular importance lay, however, in one main point. Till

1833 no Indian legislation had the least effect in the Supreme Courts. It is true that provision had been made by which an Indian regulation would become binding on those courts once it had been registered by them. But such registration had lain wholly within the pleasure of the courts themselves ; and the Indian governments had steadily refused to recognise the veto in effect entrusted to the courts by refusing to submit their acts for registration. Their legislation had thus been binding on Indian residents outside the presidency towns and on the Company's courts established in the Mofussil, but not binding on either Indian or European residents at government headquarters or the king's courts established there. Now it became equally binding on all classes of inhabitants, whatever their place of residence, and on all courts of law, whatever the authority by which they were constituted. In order to complete its powers the new legislature was authorised to modify or define the jurisdiction even of courts established by royal charter, though the latter might not be abolished without the previous sanction of the home authorities.

Let us now turn to the Mofussil. Lord Clive, secured the Empire of India for his country by obtaining the grant of the Dewanny for the East India Company from the then Moghul Emperor. Previously to this, the Nawab Najm al Daulah, on his accession to the Masnad after the death of his father, Nur Jaafar Aliy Khan, had entrusted the Subahdari to the management of a Naib, or deputy, to be appointed by the advice and recommendation of the English : but the Firman which conferred in perpetuity the Dewanny authority over the Provinces of Bengal, Behar, and Orissa on the East India Company, constituted them the masters and virtual sovereigns of those Provinces ; the office of Dewan implying not merely the collection of the revenue, but the administration of civil justice.

This Firman was granted on the 12th of August, 1765, and was accompanied by an Imperial confirmation of all the territories previously held by the East India Company under grants from Kasim Aliy Khan and Jaafar Aliy Khan, within the nominal limits of the Moghul Empire. The Nizamut, or administration of criminal justice, was, at the same time, conferred upon the Nawab Najm al Daulah. The Dewanny was further recognised by an agreement dated the 30th of September in the same year, by the Nawab who formally accepted his dependent situation by consenting to receive a fixed stipend of fifty-three lakhs of rupees for the support of the Nizamut, and for the maintenance of his household and his personal expenses.

From this period the Nizamut as well as the Dewanny was exercised by the British Government in India through the influence possessed by the English over the Naib Nazim ;

the Nizamut comprising the right of arming and commanding troops, and the management of the whole of the Police of the country, as well as the administration of criminal justice.

For some time subsequent to this assumption of power it was not, however, thought prudent, either by the authorities in England or in India, to entrust the administration of justice or the collection of the revenue to the European servants of the Company; their ignorance of the civil institutions and internal arrangements of the country rendering them, with a few exceptions, totally unqualified for either task. Accordingly, the administration of the provinces included in the Dewanny was for the present left in the hands of the native officers, an imperfect control being exercised over them by an English Resident at the Court of the Nawab.

In 1769, when Verelst was Governor of Bengal, Supervisors were appointed for the superintendence of the native officers, and they were furnished with detailed instructions to inquire into the history, existing state, produce, and capacity of the provinces, the amount of the revenues, the regulations of commerce and the administration of justice.

In the year 1772, the Court of Directors announced to the Government of Bengal their intention 'to stand forth as Dewan, and, by the agency of the Company's servants, to take upon themselves the entire care and management of the revenues'

Warren Hastings was now Governor, having been appointed to that important office in the preceding year. In order to carry into effect their determination, the Court of Directors appointed a Committee consisting of the Governor and four Members of Council; and Warren Hastings and his coadjutors drew up a Report, comprising plans for the more effective collection of the revenue and the administration of justice.

This Report gave a detailed account of the Muhammadan Law Courts; and after animadverting strongly on their inefficiency, proceeded to set forth a plan for the more regular administration of civil and criminal justice, stated to have been framed so as to be adopted 'to the manners and understandings of the people and exigencies of the country adhering, as closely as possible, to their ancient usages and institutions'.

This plan was adopted by the Government on the 21st of August, 1772; and although the constitution of the Courts was shortly afterwards completely altered, many of the rules which it contained were still preserved in the Bengal Code of Regulations.

In each Collectorate were established Mofussil Dewanny Adawluts or Provincial Civil Courts for the administration of Civil justice, which were presided over by the Collectors on the part of the Company. A Criminal Court, styled the Foujdary Adawlut, was also established in each district. In these Criminal Courts the Kazi or Mufti of each district was directed

to sit to expound the law, and determine how far delinquents were guilty of any breach thereof; but it was also provided that the Collector should attend to the proceedings, and see that the decision was passed in a fair and impartial manner, according to the proofs exhibited.

Two Superior Courts were established at the chief seat of Government to be called the Dewanny Sudder Adawlut and the Nizamut Sudder Adawlut: the former to be presided over by the President and Members of Council, assisted by Indian officers, and to be a Court of Appeal in all cases and the latter to be presided over by a chief officer, to be called the Daroghah Adawlut, appointed on the part of the Nazim, assisted by Muhammadan law officers.

The Committee of the House of Commons, in the celebrated Fifth Report, speaking of the Revenue and Judicial Regulations made by Warren Hastings, observe, that they manifest 'a diligence of research, and a desire to improve the conditions of the inhabitants by abolishing many grievous imposts and prohibiting many injurious practices which had prevailed under the Native Government; and thus the first important step was made towards those principles of equitable government which it is presumed the Directors always had it in view to establish, and which, in subsequent institutions, have been more successfully accomplished'.

In the year 1774, the European Collectors were re-called and Amils appointed instead. The administration of civil justice was transferred from the Collectors to the Amils, from whose decisions an appeal lay in every case to the Provincial Councils, and thence, under certain restrictions, to the Governor and Council as the Sudder Adawlut. The Amil report, as it was called, has recently been made accessible by Mr. R. B. Ramsbotham of the I.E.S. and he has laid all students of history under a deep obligation by his careful edition of the same.

After Warren Hastings had presided in the chief Criminal Court established at Calcutta for about eleven months, he felt himself obliged to resign the situation; and accordingly, in October, 1775, the Nizamut Adawlut was removed from Calcutta and established at Moorshedabad, under the superintendence of Muhammad Riza Khan.

These arrangements for the administration of justice remained in force, with scarcely any change, until the year 1780. About this time, the many avocations of the Governor-General and Council compelled them to give up sitting in the Sudder Dewanny Adawlut, and a separate Judge was accordingly appointed to preside in that Court. The person selected for this high office was Sir Elijah Impey. He was accused of having accepted the office as a bribe; but whilst his legal attainments and position sufficiently accounted for his selection, the self-denial, so rare in India in those days, with which he

‘declined appropriating to himself any part of the salary annexed to the office of Judge of the Sudder Dewanny Adawlut until the pleasure of the Lord Chancellor should be known’, of itself sufficiently refuted the accusation.

Sir Elijah, in fulfilment of the duties which devolved upon him by virtue of his new office, and without any remuneration, prepared a series of Regulations for the guidance of the Civil Courts, which he submitted to Government in November 1780. They were afterwards incorporated, with additions and amendments, in a revised Code, passed in 1781, which was translated into the Persian and Bengali languages. Under these Regulations, all civil causes were made cognizable by the Dewanny Adawluts. The functions of the Judges of these Courts were entirely severed from the revenue department, four districts being, however, excepted, where for local reasons, the functions of Civil Judge and Collector were exercised by the same persons, but expressly in distinct capacities, and, as Civil Judge, wholly independent of the Board of Revenue, and subject only to the authority of the Governor-General in Council and of the Judge of the Sudder Dewanny Adawlut. An appeal lay from the decisions of the Provincial Dewanny Adawluts, in cases where the amount in dispute exceeded 1,000 rupees, to the Sudder Dewanny Adawlut.

In the year 1781, the Foujdars instituted in 1775 were abolished, and the Police jurisdiction was transferred to the Judges of the Dewanny Adawluts, or in some cases, to the Zamindar by special permission of the Governor-General in Council. The Judges, however, were not empowered to punish, but merely to apprehend offenders, whom they were at once to forward to the Daroghah of the nearest Foujdary Court; and the Judge of the Dewanny Adawlut, the Daroghah of the Nizamut Adawlut, and the Zamindar were to exercise a concurrent jurisdiction for the apprehension of robbers and disturbers of the public peace. A separate department was established at the Presidency, under the immediate control of the Governor-General, to receive reports and returns of the proceedings of the Foujdary Courts, and lists of persons apprehended and convicted by the authorities in the provinces. To arrange these records, and to maintain a check on all persons entrusted with the administration of criminal justice, an officer was appointed, to act under the direction of the Governor-General with the title of Remembrancer of the Criminal Courts. His apostolic successor to-day is the present Legal Remembrancer. In 1782 the Court of Directors sent out orders to the Governor-General in Council to resume the superintendence of the Sudder Dewanny Adawlut. Parliament interfered and an Act was passed in 1784, viz. the 24th Geo. III. c. 25, to regulate the affairs of the East India Company and of the British possessions in India.

The Marquess Cornwallis was selected to superintend the measures determined upon in pursuance of the said Act and in the year 1786, he proceeded to India as Governor-General, carrying with him detailed instructions from the Court of Directors, stating, 'that they had been actuated by the necessity of accommodating their views and interests to the subsisting manners and usages of the people, rather than by any abstract theories drawn from other countries or applicable to a different state of things.'

In compliance with these instructions, Lord Cornwallis directed the re-union of the functions of civil and criminal justice with those of the collection and management of the revenue, and the Dewanny Adawluts were accordingly, in the year 1787, placed under the superintendence of the Collectors. District Courts were established in Moorshedabad, Dacca, and Patna presided over by Judges and Magistrates who were not Collectors, that office being unnecessary, as their jurisdiction was circumscribed by the limits of these cities. The proper Collectors or Revenue Courts were kept distinct from the Dewanny Adawluts, although presided over by the same persons. From the latter, appeals were followed, within certain limits, to the Governor-General and Council, in their capacity of Judges of the Sudder Dewanny Adawlut: and the decisions of the Revenue Courts were appealable, first to the Board of Revenue, and thence to the Governor-General in Council. The Collectors also were appointed to act as Magistrates in apprehending offenders against the public peace, but with the exception of the chastisement of petty offences, they had no power of trial or punishment, and were directed to deliver up their prisoners for that purpose to the Muhammadan criminal officers, who were not to be interfered with beyond the influence possessed by the British Government in recommending the mitigation of punishments of unnecessary cruelty.

The administration of criminal justice remained in the hands of the Naib Nazim until the end of the year 1790, when the Governor-General, convinced of the inefficacy of the different plans which had been adopted and pursued from the year 1772, declared that, with a view to ensure a prompt and impartial administration of the criminal law, and in order that all ranks of people might enjoy security of person and property, he had resolved in Council to resume the superintendence of the administration of criminal justice throughout the provinces. Accordingly the Nizamut Adawlut was again removed from Moorshedabad to Calcutta, and was appointed to consist of the Governor-General and members of the Supreme Council, assisted by the Kazi al Kuzat and two Muftis.

The administration of civil justice appears to have remained materially the same from 1787 until 1793, when Lord Cornwallis introduced his celebrated system of judicature, and

formed the Regulations into a regular Code, which is the basis of the Regulation Law prevalent throughout India.

The following remarks in the preamble show the spirit in which the legislation of 1793 was framed :—

‘To ensure, therefore, to the people of this country, as far as is practicable, the uninterrupted enjoyment of the inestimable benefit of good laws duly administered, Government has determined to divest itself of the power of interfering in the administration of the Laws and Regulations in the first instance, reserving only as a Court of Appeal or review the decision of certain cases in the last resort, and to lodge its judicial authority in Courts of Justice, the Judges of which shall not only be bound by the most solemn oaths to dispense the Laws and Regulations impartially, but be so circumstanced as to have no plea for not discharging their high and important trusts with diligence and uprightness. They have resolved that the authority of the Laws and Regulations so lodged in the Courts shall extend, not only to all suits between Native individuals, but that the officers of Government employed in the collection of the revenue, the provision of the Company’s investment, and all other financial or commercial concerns of the public shall be amenable to the Courts for acts done in their official capacity in opposition to the Regulations, and that Government itself, in superintending these various branches of the resources of the State, may be precluded from injuring private property, they have determined to submit the claims and interests of the public in such matters to be decided by the Courts of Justice according to the Regulations in the same manner as suits between individuals. To deprive the Judges of the Courts of the power of delaying or denying justice, the Governor-General in Council has determined to frame the constitution of the Courts upon such principles as will enable every individual, by the mere observance of certain forms, to command at all times the exercise of the judicial power of the State thus lodged in the Courts for the redress of any injury which he may have sustained in his person or property.’

The main alteration made by this system was the vesting of the collection of revenue and the administration of justice in separate officers; and for this were assigned, amongst others, the following reasons: ‘It is obvious, that if the Regulations for assessing and collecting the public revenue are infringed, the revenue officers themselves must be the aggressors, and that individuals who have been aggrieved by them in one capacity can never hope to obtain redress from them in another. Their financial occupations equally disqualify them from administering the laws between the proprietors of land and their tenants’. The Mal Adawlut, or Revenue Courts, were accordingly abolished, the Revenue Board was divested of its powers as a Court of Appeal, and all causes hitherto tried by

the revenue officers were transferred to the Dewanny Adawluts, which were now established in each provincial division, and presided over respectively by a covenanted servant, in whose person were united the powers of Judge and Magistrate, and who also had the management of the Police within the limits of his division.

The Nizamut Adawlut or chief Criminal Court, was held at Calcutta and consisted of the Governor-General and Members of the Council, assisted by the Kazi al Kuzat and two Muftis. This Court had cognizance of all matters relating to the administration of Criminal Justice and the Police, and was authorised to exercise the same powers as were vested in it when it was superintended by the Naib Nazim. The sentences of the Nizamut Adawlut were in all cases to be final ; but the Governor-General in Council had a power of pardoning or commuting the punishment awarded. All these Courts administered the Muhammadan criminal law as modified by the Regulations.

A material alteration took place in the constitution of the Sudder Dewanny Adawlut, during the administration of the Marquis of Wellesley in the year 1801, when it was made to consist of three Judges, to be selected from the covenanted servants of the Company. The number of Judges was increased in the year 1811, and the Court thenceforth was to consist of a Chief Judge and of as many Puisne Judges as the Governor-General in Council might deem necessary.

In the year 1813, by the Statute 53d Geo. III. c. 155. s. 107 British subjects residing, trading or holding immoveable property in the provinces, were made amenable to the Company's Courts in civil suits brought against them by Indians, with, however, a right of appeal to the Supreme Court at Fort William in cases where an appeal otherwise lay to the Sudder Dewanny Adawlut.

In the year 1813 the Statute 53d Geo. III. c. 155. s. 105 made British subjects resident in the provinces punishable by the District and Zillah Magistrates for assaults and trespass against the Natives of India ; but the convictions of such Magistrates were removable by Certiorari to the King's Courts.

In 1833 the Provincial Courts were finally abolished : all original suits then pending in such Courts were directed to be transferred to the Zillah and City Courts ; and all appeals, regular, special or summary, so pending, were to be transferred to the Sudder Dewanny Adawlut. Additional Zillah and City Judges were also appointed in the same year.

In 1836 it was enacted that the 53d Geo. III. c. 155. s. 107 which gave to British subjects resident in the provinces a right of appeal from the Company's to the Supreme Courts should cease to have effect in India ; and it was also enacted that no person by reason of birth or descent should be exempt

from the jurisdiction of the Company's Courts, or be incapable of being a Principal Sudder Ameen, Sudder Ameen or Moonsiff.

In the year 1843 it was enacted that special appeals should lie to the Sudder Dewanny Adawlut from all decisions passed in regular appeals in all subordinate Civil Courts, when it should appear that such decisions were inconsistent with law or usage, or the practice of the Courts or involved doubtful questions of law, usage or practice.

In the year 1844 it was enacted that all suits within the competency of a Principal Sudder Ameen or Sudder Ameen to decide should ordinarily be instituted in their Courts; but that the Zillah or City Judges might withdraw them, and try them themselves, or refer them to any other competent Court subordinate to them. The Zillah and City Judges were also empowered to admit summary appeals from the orders of Principal Sudder Ameens and Sudder Ameens rejecting suits cognizable by them.

In the year 1801 the constitution of the Nizamut Adawlut was altered; the Governor-General and Council no longer presided; and it was declared to consist of three Judges, assisted by the Chief Kazi and two Muftis. The number of Judges was afterwards increased, as in the Sudder Dewanny Adawlut.

In 1807 Magistrates were given an extended jurisdiction, and were empowered to inflict imprisonment, not exceeding one year, in addition to fine or stripes: but this power was not to be exercised by Assistant Magistrates.

In 1808 it was declared that all trials of persons for robbery with open violence, and liable to transportation for life, should on the conviction of the offender be referred to the Nizamut Adawlut.

Speaking generally the state of things described as above remained the same till 1861 when the fusion of the Supreme and Sadar Courts came about as a result of a statute passed in the 24th and 25th years of the reign of Queen Victoria. The necessity for reform of the judicial system and of the law obtaining in India had been recognised long before the transfer of the Government of India to the Crown in 1858. Lord Palmerston appointed the second Law Commission in 1854 for the purpose of reorganising the entire judicial system and Sir Charles Wood announced in Parliament about the same time that it had been settled that there should be one Court to be called the High Court in place of the two Courts referred to above. The reform of the judicial system had indeed been foreshadowed by the Charter Act of 1833. In 1822, Sir Charles Grey, Chief Justice of Bengal, had pointed out the utter want of connection between the Supreme Court and the Provincial Courts and the two sorts of legal process which were employed in them, and Sir Erskine Perry, Chief Justice of Bombay, referred later to the strange anomaly in the jurisprudential condition of British India

which consists in the three capital cities having system of law different from those of the countries of which they are the capitals.

Attention had moreover been attracted before 1808 on the one hand to the cumbrous structure of the Supreme Courts with their common law, equity, admiralty, and ecclesiastical sides, reproducing the separate English jurisdictions, and to the anomaly of the retention in them of the forms of pleading abandoned in England in 1852; on the other to the dangers involved in leaving the administration of justice in the districts to judges without professional training unassisted by any definite or uniform procedure or substantive law. The amalgamation of the Supreme and Sadar Courts and their jurisdictions was clearly essential. But it was only in 1862 that, after delay for the passing of a Code of Civil Procedure for the new courts and those subordinate to them, the existing Supreme and Sadar Adalat Courts were abolished and replaced under the Indian High Courts Act, 1861, by the new High Courts at Calcutta, Madras, and Bombay. Under powers given by the act one other High Court could be established at a place to be selected and in 1866 a High Court was established at Allahabad to exercise the jurisdiction over the North-Western Provinces hitherto exercised from Calcutta. No addition was made to those High Courts until 1916 when one more was established at Patna for the province of Bihar and Orissa constituted on the rearrangement of the province of Bengal in 1912.

The constitution and powers of the High Courts then created have remained unaltered in essentials during the period under consideration. The judges are appointed by the Crown and hold office during His Majesty's pleasure. Their number has been increased from time to time permanently or temporarily to cope with increasing business, but no change has been made in the provision of the act of 1861 under which one-third of the judges in each court are members of the English, Irish, or Scotch Bar, one-third members of the Indian Civil Service and the remainder persons who have held judicial office in India for five years or have practised as pleaders at a High Court for ten. On its appellate side each of those courts exercises the jurisdiction inherited from the Sadar Court over the districts and on its original side that of the Supreme Court over the presidency town where it sits. The exclusive jurisdiction over British subjects in the districts in serious criminal cases was abolished with the Supreme Courts in 1861, special provisions for their protection being included in the Code of Criminal Procedure. The provisions of the act of 1781, rendered necessary by the Patna and Cossijura cases and the conflict between the Supreme Court and the Governor-General's Council, were re-enacted, matters concerning the revenue, its collection in accordance with the law or usage of the country and the

official acts of the Governor-General, the provincial governors and the members of their councils being excluded from the High Courts' original jurisdiction. The territorial jurisdiction of the High Courts has since their creation remained substantially unchanged except in the case of Calcutta, comprising in the case of each the province it belongs to, and, for the purpose of exercise of its powers over British subjects, such adjoining native states as the Governor-General in Council may direct under the Foreign Jurisdiction Act, 1890. By orders in council under the act the High Court of Bombay also exercises powers over Zanzibar and the Persian coast.

It was part of the scheme for the reorganization of the judicial system that the creation of the new High Courts should be postponed until, in the words of Sir C. Wood, 'a code of short and simple procedure had been prepared' in order that 'a simple system of pleading and practice uniform, so far as possible, throughout the whole jurisdiction, might be adopted and one capable also of being applied in the inferior courts of India'. The Code of Civil Procedure enacted in these circumstances was the first instalment of the earliest comprehensive attempt at codification in the British Empire. To the understanding of the circumstances in which that attempt was made and of the value of the result, some account of the law administered under the Supreme and Sadar Courts is essential.

According to a general description given in 1829 by the judges of the Supreme Court of Calcutta, no one could then pronounce an opinion or form a judgment however sound, upon any disputed right regarding which doubt and confusion might not be raised by those who might choose to call it in question; for very few of the public or persons in office at home, not even the law officers, could be expected to have so clear and comprehensive a knowledge of the Indian system as to know familiarly the working of each part on the rest. There were English acts of parliament specially provided for India and others of which it was doubtful whether they applied to India wholly or in part or not at all. There was the English common law and constitution of which the application was in many respects most obscure and perplexed; Mahomedan law and usage; Hindu law, usage, and scripture; charters and letters patent of the courts; and regulations of the government, some requiring registration in the Supreme Courts, others not, whilst some had effect throughout India and others were peculiar to one presidency or one town. There were commissions of the governments and circular orders from the Nizamut Adalat and from the Dewani Adalat, treatises of the Crown, treatises of the Indian Government, besides inferences drawn at pleasure from the *droit public* and the law of nations of Europe to a state of circumstances which will justify almost any constitution of it or qualification of its force.

More definitely, we find that as regards procedure the Supreme Courts with their common law, equity, ecclesiastical and admiralty sides had adopted on each the appropriate English practice, except that the *viva voce* examination of witnesses was taken down completely in writing. In the inferior Courts the English procedure was followed except that written pleadings were dispensed with. In the Sadar Courts and in the districts suits were dealt with, in Bengal mainly under a code enacted by Lord Cornwallis in 1793, resembling rather the equity or even the Scotch system than the common law; in each of the other provinces under its own regulations of somewhat later date.

General recognition of the uncertain, localised and on the criminal side arbitrary character of the systems thus established had led to the reference already quoted in the act of 1833 to the expediency of ascertaining and consolidating the law and to the further provision for the appointment of an Indian Law Commission to enquire and from time to time make reports which were to be transmitted by the Governor-General in Council with his opinion to the Court of Directors and to be laid before Parliament. The commission thus constituted was composed of Macaulay, the first member appointed to the council for legislative purposes, and a civilian from each of the presidencies. It first under the instructions of government busied itself with the draft of a Penal Code, completing it before Macaulay's departure from India in 1837. Subsequently, however, it confined itself to the periodical issue of reports, containing proposals on which legislation has since been founded, and became defunct after submitting a draft limitation law in 1842 and a scheme of pleading and procedure with forms of criminal indictments in 1848. It was succeeded by a body of commissioners appointed in England under the Charter Act of 1853 to examine and report on its recommendations within three years. The commission included Sir John Romilly, Master of the Rolls; Sir John Jervis, Chief Justice of Common Pleas; Mr. Lowe, afterwards Lord Sherbrooke; Mr. Cameron, known as a disciple of Bentham; and other members with Indian experience; and its first duty was the preparation of the Code of Civil Procedure, pending which the erection of the new High Courts had been postponed. This Code, as it was passed in 1859, did not apply to the Supreme Courts, but the greater part of it was extended to the High Courts by their letters patent in 1862. The law of limitation and prescription was next taken up; and in 1859 a bill drafted by the first Indian Law Commission and revised by the second became law.

In 1860, the Penal Code, based on the draft proposed by Macaulay's commission and revised by Mr. Bethune, the legal member of council, and Sir Barnes Peacock, was passed. It was followed in 1861 by a Code of Criminal Procedure for the courts

other than those in the presidency towns, where the English procedure was retained until the passing of Acts for the High Courts in 1875 and for the Magistrates' Courts in 1877.

Various other branches of substantive and objective law have since been codified and to-day the judiciary have in these codes the principles of law which they have to administer, laid down in clear terms and in such a manner that the Anglo-Indian codes have been the objects of admiration not only among English jurists but among jurists outside Great Britain. The evolution of the codes and Courts thus far described has been mainly due to the labours of a devoted man of British public servants in India within which expression I include Civilian Judges of the old Sadar Dewanny Adawlut like Messrs. Trevor and Seton Carr.

I now turn to the evolution of the judicial mind in India. The judiciary is, in effect, part of the public service of the Crown. But a judge is not 'employed' in the sense that a civil servant is employed. He fills a public office, which is by no means the same thing; and part of his independence consists in the fact that no one can give him orders as to the manner in which he is to perform his work. Like the more fortunate practitioners in most professions he 'owns no man master'. The only subordination which he knows in his official capacity is that which he owes to the existing body of legal doctrine enunciated by his brethren, past and present, on the Bench, and the legislative enactments of the King in Parliament and of the Indian Legislature.

A judge may give an unlimited number of decisions which are wrong in law and based on incorrect findings of fact, without incurring a penalty; and the continual reversal of his judgments by the higher courts will lead to no consequence affecting him personally.

The security of tenure which the judge enjoys, I trust this is the case even in India, is at bottom the most essential fact underlying the principle of independence. It results in a recognition by the general public that the judge has nothing to lose by doing what is right and nothing to gain by doing what is wrong; and is founded on the belief that a man cannot be relied upon to act rightly regardless of the personal consequences.

The independence of the judiciary lends prestige to the office of judge and inspires confidence in the general public.

Not only is the judge given an almost complete independence in the tenure and conduct of his office, but certain immunities of an important character are extended to him in his official capacity. The most notable of these is an immunity from legal responsibility in respect of his judicial functions.

In return, as it were, for his independence and immunity, the judge is required to observe certain conditions in the

performance of his official functions. The first of these is that he shall not have any interest in the subject-matter of the litigation coming before him.

Underlying this condition that the judge must be free from certain obvious and crude forms of interest in the case which he is called upon to decide, is the fundamental principle that a man cannot be judged in his own cause. Nor can he be both accuser and judge.

One noteworthy characteristic of judicial functions exercised in courts of law is the fact that the work of a judge is essentially personal to himself.

Of all the characteristics of judicial functions none is more essential than the right to a hearing. The safeguards of civil liberty find expression in few principles of greater importance, according to English legal notions, than that embodied in the maxim that every man is entitled to his day in court.

According to English ideas the judge is under an absolute duty to fix a time and place for the trial.

The hearing of the case, when it comes before the court, must be conducted in accordance with a known and established procedure.

One noteworthy characteristic of judicial function is the rule that, in theory at all events, only the immediate issue at hand shall be determined.

What is called the administration of justice requires not merely the establishment of organs of justice, such as courts of law or other tribunals, but also, and perhaps more importantly, that the matters to be adjudicated upon shall be decided by a particular process. That process is the judicial process. It consists in the application of a body of rules or principles by the technique of a special method of thought, and in the presence of certain psychological elements.

In Xenophon Astyages asks Cyrus to give an account of his last lesson. Cyrus answers thus: 'One of the boys of our school had a coat too small for him and gave it to one of his companions, a little smaller than himself and forcibly took in exchange the latter's coat, which was too large. The preceptor made me judge of the ensuing dispute, and I decided that the matter should be left as it was, since both parties seemed to be better accommodated than before. Upon this the preceptor pointed out to me that I had done wrong, for I had been satisfied with considering the convenience of the thing, whereas I ought first to have considered the justice of it.' This story is said to exemplify the difference between adjudication and administration.

The urge towards this formulation of principles arises from the desire for consistency.

Consistency is not necessarily the same thing as uniformity and may, indeed, be opposed to it. Consistency prescribes

as reasoned relation, in the first place between decisions for the same class of case at different points of time ; in the second place, between different classes of case at the same point of time ; and in the third place, between different classes of case at different points of time.

It is this desire for consistency that is at the bottom of that respect for precedent which is so marked a feature of English law, and which we have imbibed.

No less important than consistency is an attribute of the judicial spirit, and intimately connected with it in some ways, is the tendency towards equality. This does not mean that everyone has similar rights, or a right to the same things ; but all rights of the same kind are equal as between different individuals.

In order that equality before the law shall prevail, in the sense mentioned above, the judge is required to distinguish carefully between facts which are relevant to the issue and those which are immaterial.

But nothing in all this touches the dominant fact that inequalities of rank, fame and fortune do not call for inequality of treatment from the judge. Here lies the fundamental difference between the mind which is imbued with the judicial spirit and the unjudicial mind.

It is not sufficient that the administration of justice should be consistent, and equal in its treatment. It is necessary also that it should be certain. We cannot be sure that a principle or rule is being administered either consistently or equally at different times and in different cases, and within different areas, unless we know what the principle is. Hence it comes about that the judicial process requires the formulation and promulgation of a definite body of legal doctrine which can be ascertained by all who are subject to its rule.

The growth of certainty in the law is closely associated with not only the drawing up of a body of principles, but also with the convention which requires judges in the higher courts to give reasons for their decisions.

We observed above that a judge in court must give reasons for his decision. The jury, on the other hand, are not permitted to state the reasons on which they base their verdict, and even if they wish to do so the judge will decline to listen.

Paradoxical though it may seem, both these rules aim at a common purpose ; namely, the development of a coherent and impersonal body of law. The judge puts the trained mind of a lawyer on to the case, and is able to reason to the conclusion in terms of legal technique. The jurymen is not equipped to express either his thoughts or his feelings in a manner consistent with the body of the law.

The methods of thought peculiar to the law tend to impose upon the judge the necessity of dealing with a case within the

confines of a series of well-defined categories. But it does not follow from this that the judge is not left with a large discretion as to the manner in which the case shall be decided within the boundaries thus marked out.

In some parts of the law, it is true, the judge is more closely bound to follow a particular course, once certain facts have been established, than in others. Where rigid rules of law prevail, a legal situation may admit of but a single solution—a mere application of the appropriate rule.

What is of greater interest from the present point of view is the exercise of the judicial function in those far more important fields where a large discretion is left to the judge to use as he thinks fit.

'Discretion', it was said in an old case, 'is a science or understanding to discern between falsity or truth, between right and wrong, between shadow and substance, between equity and colourable glosses and pretences, not to do according to the will and private affections'. It must be exercised, said Lord Mansfield some centuries later, in accordance with 'the rules of reason and justice not according to private opinion: according to law, and not humour. It is to be, not arbitrary, vague and fanciful, but legal and regular.'

The idea of a discretion which is to be exercised, not in a capricious and impetuous way, but in a disciplined and responsible manner, is a conception which has had a wide application in England and India. It really represents a compromise between the idea that people who possess power should be trusted with a free hand, and not tied down by narrow formulæ, and the competing notion that some contingent control must be retained over them in case they act in an unreasonable way. Discretion in public affairs is seldom absolute: it is usually qualified. It must be used 'judiciously' and hence we often hear the expression 'a judicial discretion'.

The judge 'is to exercise a discretion informed by tradition, methodised by analogy, disciplined by system, and subordinated to the primordial necessity of order in the social life'.

The judge, as we have seen, must exercise his functions in a way which fulfils the need for consistency, for equality, and for certainty. His administration must be objective and impartial, and he must state explicitly the reasons for his decisions. He must suppress his personal emotions and instinctive prejudices and encourage his sense of fairness. He must do right to all manner of men 'without fear or favour, affection or ill-will'. He must come to the case with an open mind. Alertness, flexibility, curiosity must be the friends of his mind; caprice, rigidity and prejudice its enemies. He must be able to suspend judgment until he has systematically surveyed the circumstances of the case.

But the possession of those qualities does not mean that

the judge is to be a mere logical machine, an intellectual abstraction. 'Deep below consciousness are other forces, the likes and dislikes, the predilections and the prejudices. The complex of instincts and emotions and habits and convictions, which make a man, whether he be litigant or judge.'

The holders of judicial office are, in fact, in the end, like all public functionaries, charged with the responsibility of choosing and of choosing well. 'The cold neutrality of an impartial judge', of which Burke speaks is neither an accomplished fact nor a desirable ideal, and no useful purpose is served by discussion which implies that at a certain point in a man's career he suddenly loses all the normal attributes of human nature. A more enlightened appreciation of the service to the public which is rendered by a judge and of the difficulties with which he is confronted, would start by contrasting the effort of mind which is demanded of him in order to overcome his natural prejudices, with the lazy refusal to make a similar effort which is manifested by the greater part of mankind in the ordinary affairs of the market-place and the forum and the domestic hearth and the political meeting.

Even from the point of view of the judge himself, the 'cold neutrality' legend is definitely unhelpful. It has been widely observed that the judge who realises before listening to a case that all men are biased is more likely to make a conscientious effort at impartiality than one who believes that elevation to the bench makes him at once an organ of infallible logical truth.

What is meant by the impartiality of judges, so far as social matters are concerned, is that they shall not permit their opinions on certain controversial subjects of the day to influence their judgment. The judicial mind is not to be deflected by the passions of the moment on social, economic, political, or religious questions. Nor is it enough for the judge merely to endeavour to discover and follow the deeper and more permanent loyalties of the community. He must also seek to promote the progressive evolution of society. The 'good' decision is not the one which necessarily satisfies public opinion to-day, but that which will also be felt to be right five or fifteen years hence. Just as the good judge of art or literature is the man who can discern those qualities in a picture or a book which will stand the test of time, so the good judge in a court of law or other tribunal is the one who can use his discretion in a way which will assist the evolving tendencies of the community. Stress is always laid on the duty of a judge to be a trustee of the past; but in reality it is far more important that he should be a prophet of the future, in so far as that is compatible with the faithful administration of the existing body of law.

We are now at the parting of ways; a new Constitution is about to be put on the Statute Book and no one knows how the

High Courts may be affected. But so long as the independence of the Judiciary and of the Bar are traditions which remain in the bone of the British race, if I may so phrase it, I trust nothing will be done by anybody to undermine the prestige, the independence, and the dignity of our superior judicial tribunals.

PATRON'S ADDRESS.

SPEECH BY HIS EXCELLENCY SIR JOHN ANDERSON, GOVERNOR
OF BENGAL, AT THE ANNUAL MEETING OF THE ASIATIC
SOCIETY OF BENGAL, ON THE 6TH
FEBRUARY, 1933.

MR. PRESIDENT, LADIES, AND GENTLEMEN,

It is first of all my pleasant duty to congratulate both Sir Charu Chunder Ghose and the Society on his re-election as President for the forthcoming year. Looking back through the list of past Presidents of this Society from its foundation until now, I find that in the early years the links between the Presidential Chair and the Bench were many. This, as a glance at the list will show, cannot but have been to the great benefit of the Society. Dare I suggest that the study of 'Man and Nature' may have been not entirely without beneficial influence on the Bench? From the concluding passages of his address I should infer that Sir Charu would certainly agree. And if since the present century opened there have been, besides Sir Charu, only two Presidents from the High Court, Mr. Justice Pargiter and Sir Ashutosh Mookerjee made up in quality what they lacked in numbers and provide a company which any one might well be proud to join.

May I also thank the Society for the honour they have done me in asking me to be a Patron? So exalted a connection with a learned Society of the standing and repute of the Asiatic Society of Bengal is an honour which I rate very highly. And if the exigencies of the service for which primarily I have come to India prevent my participating to the extent that I should wish in your deliberations and activities, may I, in the words of your first Patron, whose bicentenary we have just been observing, say that 'I at the same time earnestly solicit your acceptance of my services in any way in which they can be, and I hope that they may be, rendered useful to your Researches'?

This is, of course, the first formal gathering of the Society at which it has been my privilege to assist, but I have been given to understand that the Society's Annual Meeting, viewed as a social event, has been for nearly a century and a half accepted as one of the closing episodes of the busy winter season in a city which for the greater part of that period was the capital of British India and which, I believe, may still assert a claim to be regarded as the intellectual capital and the first centre in research.

The topics dealt with in this Annual Meeting by successive

Presidents during that long period have embraced almost every department of human enquiry. Sometimes mainly utilitarian and dealing with the domestic affairs of the Society, at others theoretical and concerned with some branch of abstract science or, more frequently,—for we are practical in this Society—with Science in some of its practical applications, these Presidential Addresses seem to me to merit publication in an *ad hoc* compilation which, with an adequate index, would, I suggest, form a work of abiding interest and even of historical value since many of the addresses must have registered, at the time they were delivered, the high water-mark of the knowledge then available in the subject under discussion, and many of them must also contain speculations which in the light of subsequent investigations would be of the greatest interest to us to-day either for their correctness or the reverse. This evening again we have listened to an exposition of juridical history and legal theory from one who has devoted his life to the subject in theory and practice and who has given us a paper replete with the fruits of his research and experience. Surely the Society which year by year produces scholarly pronouncements of this calibre still retains the freshness and vigour of youth notwithstanding the passage of the years!

I have been somewhat struck, if I may say so, by the arrangements for this function, and as I have no other original contribution to offer perhaps I may venture to say a few words, based upon a fairly extensive experience, on the art of arranging public meetings. The perfection of an annual meeting of a Society such as our's consists in its balanced proportion. An unbalanced and disproportionately arranged annual meeting is, if I may say so, a weariness of the flesh to all concerned. The annual meeting of a public institution should be an ideal blend of business reduced to essentials, of routine not unduly prolonged, of the dignity of ceremonial and of the grace of those ornamental embellishments which may by their picturesque character relieve whatever of dry detail must of necessity be brought forward.

Studying in the light of this ideal the reports of recent annual meetings of this ancient Society, I am glad to find evidence that a high standard of arrangement has been attained by those responsible for the planning of the programme. You begin with your elections and a résumé, commendably abbreviated, of the annual report as the first act of your piece. Then comes the *pièce de resistance*, the Presidential address. Here, I observe, a wise procedure has been adopted in that the printed version is not truncated, while on the other hand the shortened version delivered to the meeting aims at the practical brevity enjoined by the circumstances and thereby goes far to avoiding the weariness which must result, even in the best of papers, from the attempt to convey to the audience a mass of detail through

that member the ear which, as Heraclitus holds, is a bad witness. I cannot too strongly commend the practice of providing a printed copy to all hearers in a room which, I perceive, is not destined to fame for its acoustics, so that lame brother ear may be helped by halting brother eye. The second Act of your play ends with the response to the address, which custom lays upon the Patron, if he be present ; and here I daresay you will, without scruple, give this much credit to my predecessors, that experience in the rôle of Chairman taught them at all events the precious art of brevity.

Next we come to the third part of your meeting as by tradition established,—awards and announcements, made in circumstances of dignity, as is meet.

By this time some relaxation from the concentrated review of the year is due and you proceed to the fourth and final part of your programme,—the informal inspection of a number of exhibits, varied in character like the interests of the Society, but representing in many instances the latest aspects of zoological, botanical, geological, philological, and antiquarian research.

Such is your programme and it seems to me admirably adapted to combine executive business with learned disquisition, and the recognition of research with the appreciation of its fruits,—in fine to be a procedure worthy of a Society of your standing and repute.

You will be thinking, ladies and gentlemen, that if I am to live up to the record of brevity which I have just commended in my predecessors it is time that I should turn to the matters arising out of the General Secretary's Report. On this subject, however, I really do intend to be brief. I fully appreciate, as we all must, the difficulty of the times through which we are passing and the discouragement that depression in the world outside must bring to those who are anxious to see the activities of the Society expanding and to take their part in the process of expansion. We may take heart from the fact that even in these times the good work of the Society has been in large measure maintained. If the production of the Journal has not been as regular as one could desire of so essential a feature of your activities, this is a matter which is being rectified by your Council, and in other respects your output is most creditable. The *magnum opus* is, of course, the Kashmiri Dictionary which was shown to me when I came here the other day. Its completion after 30 years of strenuous labour adds fresh laurels to the chaplet of your veteran member, Sir George Grierson. Apart from this, publications in the Bibliotheca Indica have made available to the reading public still more of the treasures of Eastern literature which it was one of the earliest objects of the Society to unveil.

If I say that in mere point of numbers the Society has suffered less than usual at the hands of the great Reaper, I

must not be thought to minimise the loss to the Society of such members as Mr. Vepin Chandra Rai,—our senior member, who joined the Society over half a century ago,—and Mr. Macnair who, though a late-comer to our ranks, was by himself an institution in Calcutta and was held in the highest esteem and affection by great numbers of his fellow-citizens. Nor can I forget the tragedy which deprived the Society and the Province of the life of Robert Douglas.

In conveying the congratulations of the Society to those who had figured in the Honours Lists of the year I had intended to make no individual reference, but the Society would not, I believe, easily forgive me if I pass over without comment an honour bestowed since the year under review ended on one who has deserved well of the Society,—I mean our late President, Colonel Sewell. When, within a few months from now, Colonel Sewell leaves India after a quarter of a century of work here and on the neighbouring seas, to take up the leadership of the Sir John Murray Oceanographic Expedition the good wishes of this Society will go with him, and we hope that his monumental work on the Oceanography of the Indian Seas will in due course be supplemented by another volume of equal importance to Science and honour to the Society.

The Society already possesses a remarkable collection of busts and paintings. The latter are not all specially related to the Society's history but the former are exclusively the effigies of great men who have taken a leading part in the Society's work from its early days. During the year a fine bust of the doyen of Indian Philology, Sir George Grierson, has been added to our collection. The venerable scholar may feel that even 35 years after his departure from India, he is not forgotten in the scene of his earlier labours and that in his 85th year he is still gratefully remembered. The other bust is an extremely good likeness of a distinguished past President of the Society, but as Dr. Brahmachari is present amongst us, I will, out of regard for his well-known modesty, say no more than that his bust is a valuable addition to a remarkable series.

Ladies and gentlemen, there is only one circumstance to which I wish to refer. I see from the Annual Report that your General Secretary has to-day completed a second lustrum in his tenure of this post. I am informed that this length of service has only been surpassed twice in the history of the Society and that we have to go back exactly one hundred years to find a Secretary with a longer term of office. Successive Presidents and Patrons have acknowledged the part which our genial and gifted Secretary has played in all that concerns the working of the Society. I hope we may long enjoy the benefit of his ripe erudition and experience of affairs.

OFFICERS AND MEMBERS OF COUNCIL. ASIATIC SOCIETY OF BENGAL, 1933.

Elected and announced in the Annual Meeting, 6th February, 1933.

President.

The Hon'ble Mr. Justice C. C. Ghose, Kt., Barrister-at-Law.

Vice-Presidents.

Lt.-Col. R. B. Seymour Sewell, M.A., M.R.C.S., L.R.C.P., Sc.D.
(Cantab.), F.L.S., F.Z.S., I.M.S., F.A.S.B.

L. L. Fermor, Esq., O.B.E., D.Sc., A.R.S.M., F.G.S.,
M.Inst.M.M., F.A.S.B.

Sir R. N. Mookerjee, K.C.I.E., K.C.V.O., Hon. F.A.S.B.

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EXHIBITION ANNUAL MEETING.

LIST OF EXHIBITS SHOWN AFTER THE ANNUAL MEETING
OF THE ASIATIC SOCIETY OF BENGAL, ON THE 6TH
FEBRUARY, 1933.

1. A. F. M. ABDUL ALI.

A collection of Historical Records.

- (1) Letter from Mr. J. Fortnom, Civil Architect, submitting a Plan of the town of Calcutta and indicating sites for the Hospital and Burying Ground. Estimate of the Houses, Sheds, and *Godowns* proposed to be erected at Meyapoor. (H.D. Pub. A., 9 Feb., 1767, No. 11.)
- (2) Copy of Proposals of Agreement of Nubkessen and Gocul Gosaul to farm the Calcutta Town and Lands. (H.D. Pub. A., 20 Aug., 1767, No. 1.)
- (3) Letter from the Minister to the King of Rangam (Rangoon) intimating that the King has granted Lord Clive some ground in his city to make a Factory and Bankshall to repair and rebuild ships. (H.D. Pub. A., 1 Feb., 1768, No. 2 (a) 16.)
- (4) Letter from Mr. W. Bensley, Church Warden, requesting the grant of a new bond for Rs. 50,000 bearing interest at 8 p.c. for the support of the Charity Fund of St. John's Chapel to avoid the loss threatened by reduction of interest on two of the old bonds. (H.D. Pub. A., 11 Apr., 1774, No. 1 (a).)
- (5) Letter from Mr. Charles Weston, Clerk of the Vestry of St. John's Chapel to Mr. John Stewart, Secretary, refusing to lease the Court-house unconditionally to the Company, but desiring that the Company should always be their tenants, and enclosing a copy of the proceedings of the Vestry of the St. John's. (H.D. Pub. A., 9 Feb., 1775, No. 1.)
- (6) Letter from Mr. Alexander Elliot, reporting that Messieurs Chevalier and Sanson have been arrested, and enclosing their parole. Draft of a reply to Mr. Alexander Elliot. (H.D. Pub. A., 10 Aug., 1778, Nos. 1-2.)
- (7) Letter from Mr. Robert Farquhar, reporting the death of Mr. Elliot, enclosing copies of his letters to *Raja* Moodagee Bonsola and Col. Leslie, and intimating that before he starts for Nagpore, he will leave Mr. Elliot's valuables with Col. Leslie. (H.D. Pub. A., 19 Oct., 1778, No. 12.)
- (8) Minute of Mr. Philip Francis objecting to the permission granted to Messieurs Chevalier and Monneron to go to Europe by way of Suez. Governor-General's minute refusing to withdraw the permission granted to Messieurs Chevalier and Monneron. (H.D. Pub. B., 7 Dec., 1778, Nos. 1-2.)
- (9) Translation of a letter from M. Chevalier, requesting compensation for articles stolen from his warehouses during the siege of Chandernagore. (H.D. Pub. B., 7 Dec., 1778, No. 3.)
- (10) Governor-General's minute making certain propositions for the better management of the Company's monetary affairs. (H.D. Pub. A., 29 Feb., 1780, No. 6.)

- (11) Governor-General's minute relative to the Dutch claims. (H.D. Pub. A., 10 Apr., 1780, No. 23.)
- (12) Proposition of the Governor-General prohibiting the exportation of gold and silver. (H.D. Pub. A., 23 Nov., 1780, No. 61.)
- (13) Letter from the Commissioners of the Regulating Bill proposing to make an alteration in the said bill by declaring that the taxes should be paid monthly by the occupiers of houses. (H.D. Pub. A., 29 Nov., 1780, No. 18.)
- (14) Letter from Mr. J. P. Auriol, Agent for Supplies to the other presidencies, forwarding musters of rice purchased for the use of the Garrison at Fort St. George, requesting advances of money for paying the cost and freight to Madras, and intimating that he has made an agreement with Captain Thornhill for the purchase of 10,000 maunds of the best Backergunge rice. Account of rice purchased, agreeable to the musters referred to above. List of vessels taken up on freight for Madras. (H.D. Pub. C., 28 Dec., 1780, No. 7.)
- (15) Draft of the oath to be taken by the members of the Board of Trade. (H.D. Pub. B., 18 May, 1786, No. 4.)
- (16) Petition from Ramgopal Basu and Giridhar Babu, on behalf of the native inhabitants of Calcutta, representing the hardships of the poor people on account of the rigorous enforcement of the collection of house tax in Calcutta, and soliciting redress. (H.D. Pub. B., 24 Aug., 1792, No. 17.)
- (17) Price current of grain on the 12th September. Letter from Mr. R. McFarlane, Clerk of the market, to Mr. E. Hay, Secretary, enclosing a price current. Price current of grain on the 14th September. (H.D. Pub. C., 14 Sep., 1792, Nos. 4, 5, 6.)
- (18) Letter from the Commissioners of Police, forwarding several statements and accounts relating to the Police office, stating that it is not possible to effect any reduction of expenses in the Police establishment without reducing the salaries of officers, reporting that a considerable portion of the arrears of taxes is due from the poorest class of inhabitants, and recommending that persons who live in houses at a rent of five rupees and less should be exempted from taxes. (H.D. Pub. A., 1 Feb., 1793, No. 18.)
- (19) Introduction of postage stamps in supersession of the system of money payments as postage. These papers show what attempts were made at the time to print the stamps in India. (H.D. Pub. A., 18 March, 1853, No. 1.)
- (20) Postal Reforms. (H.D. Pub. A., 1 July, 1853, Nos. 1-3.)
- (21) Proclamation issued by the Nana Sahib to incite the Indian troops during the Mutiny of 1857, together with its translation. Received from Mr. Wynyard, the then Judge at Gorakhpore. (H.D. Pub. A., 7 Aug., 1857, No. 137.)
- (22) Completion and fitting up of the 'Time Ball' for use in Calcutta. (H.D. Elec. Tele. Cons., 5 March, 1858, Nos. 8-9, A.)

2. BANGIYA SAHITYA PARISHAD.

Miscellaneous Antiquities.

- (1) *Saktipur Grant of Lakshana Sena Deva.* A copperplate of Lakshana Sena Deva newly discovered at Saktipur in Murshidabad. Mention of hitherto unknown *Kankagram*

- Bhukti* is made in this plate (Vide *Sahitya Parishad Patrika*, Vol. XXXVIII, No. 4 and Vol. XXXIX, No. 1).
- (2) *Chamunda*. A Brahmaical image of Dantura, one of the eight varieties of Chamunda. It is also identified as Kankalini, one of the 64 Yoginis of Chamunda. From Attahas, Burdwan.
 - (3) *Manuscript cover*—Engraved.
 - (4) *Manuscript cover*—Engraved.
 - (5) *Manuscript cover*—Painted.
 - (6) *Old painting*. Depicting a scene of Krishna-leela.
 - (7) *Muktā-carita*. Date of Composition Saka 1546, date of MS. 1103 B.S. (1196 A.D.). It is a metrical translation in Bengali by Narayandasa of a Sanskrit work of the same name by Raghunathdas (Goswami). It deals with the love affairs of Radha and Krishna in connection with a pearl necklace.
 - (8) *Chaura-Chakravarti*. Period of composition 17th century, date of MS. 1172 B.S. (1765 A.D.). The author Kashiswar, describes through stories the principles of stealing and plundering.
 - (9) *Autograph of Maharajadhiraja Prithvipati Ramkrishna Ray Bahadur*. (Natore family.)
 - (10) *Samachar Durpan*. The oldest newspaper in Bengali, 1818 A.D. Editor T. C. Marshman, Published from Serampore.
 - (11) *Playing cards from Vishnupur* 20 pieces [Cf. H. P. Shastri, Note on Bishnupur Circular Cards *J.A.S.B.*, 1895, Vol. 64, pt. 1, p. 284.]

3. L. BOGDANOV.

(1) *A Persian 'Cup of Forty Keys'.*

(*Jām-i 'ihil Kīlid.*)

(Probably XVII-XVIII century.)

Diameter 6 ins. (on top), 2 ins. (bottom). Elaborately carved and ornamented in relief-work.

One half of the brim is occupied by the short (3 verses) CX Chapter of the Qur'ān ('*Sūratu-n-Naṣr*'—'The Chapter of the Assistance') inscribed in a somewhat angular naskhī-script. On the second half of the brim begins without any transition (except the usual introductory formula) the longer (29 verses) XLVIII Chapter of the Qur'ān ('*Sūratu-l-Fath*'—'The Chapter of the Victory'), which runs right to the bottom of the cup, is continued on the outside and ends in the small hollow on the outside of the bottom.

The inside of the cup is ornamented by a bold strap-work design in relief, a wheel-shaped design in relief covers the convex part of the bottom, around which is inscribed in bold relief *nasta'liq*-characters the well-known prayer to 'Alī (*du'ā-i nādi 'Alī*). On the outside of the cup, just under the brim, run all around (enclosed each in its thin frame, and divided from the rest by a double line) invocations to the twelve inams. Under the same are carved in relief the twelve Signs of the Zodiac.

Magic power was attributed to these cups in Persia, and they were more especially made to order in cases of barrenness of women, which was supposed to be removed by means of ablutions from such cups. The Sūras of the Qur'ān inscribed on them are selected not so much for their contents, as by virtue of their titles, *fath* meaning not only 'Victory', but also 'the action of opening', and the combination of the two titles '*Naṣr*' and '*Fath*' being

an allusion to v. 13, s. LXI of the Qur'ān: *naṣrun mina-llāhi wa fathun qarīb* 'Assistance from God,—and victory is near', which is often found inscribed on old swords (with the meaning 'Victory') and on entrance-doors of Persian houses (in the meaning of 'opening').

Holes are sometimes made in the brim of the cup and a score or so of small flat pieces of brass, roughly reminding one of keys, are attached to it on a string. Or else, a funnel-shaped small cup with a dozen holes in the brim is fixed on the top of the convex bottom, one such key-shaped piece of brass dangling from each hole.

(2) *An Afghan drinking-cup.*

(Probably early XIX century.)

Diameter 7 ins. (top), 6½ ins. (bottom). Originally whitened with tin, as are, in general, all brass-vessels in Afghanistan. The tin has been removed by the present owner. The bottom on the inside is covered by an elaborate flower-design (*būta*) in relief, the rest of the inside surface remaining plain, except for four roughly engraved almond-shaped (*bādāmcha*) ornaments, repeated also on the outside, where they divide the four hemistichs of the roughly carved following quatrain:

'O owner of the bowl! may sorrow be forgotten by thee!

May the desire of thy heart be always attained by thee!'

'Whenever thou shouldst desire the Water of Life,

O thou who drinkest from this bowl, may it be sweet to thee!'

Each hemistich is, besides, enclosed in a roughly cut frame. Underneath the verses, 8 star-shaped (*sūāra*) ornaments alternate with 4 flower-buds (*būta*).

A relief strap-work flower design half an inch wide runs under the brim of the bowl. The brim is covered with an S-shaped strap-work design.

The plain bottom is decorated with two double-line concentric circles.

4. MISS M. L. CLEGHORN.

Increased Production of Superior Silk in Bengal.

Chart shewing a revised programme of work recommended for increasing the outturn of superior reeling silk in Bengal, as within the Silk Industry there is a great source of wealth when the natural advantages possessed by Bengal for superior crops of silk during the cold season are used to their fullest extent.

5. K. N. DIKSHIT.

Some antiquities recently excavated at Paharpur.

The antiquities exhibited here are excavated from a shrine outside the great monastery at Paharpur. The terra cotta fragments with rows of Buddhas attaining enlightenment and preaching decorated the basement of votive stupas arranged round the central shrine. The latter was most probably dedicated to the worship of Tara whose effigy is stamped on scores of seals found in the excavations. The votive shrines in the courtyard show elaborate designs in their planning reminiscent of the cruciform plan of the Paharpur Temple. The contents of relic chamber of one of these votive shrines were examined and vast numbers of unburnt clay stupas—complete with basement, drum and finial—encasing minute round sealings impressed with the Buddhist creed were found. In the later stages of Buddhism under the Palas of Bengal as represented at Nalanda and Paharpur,

the corporeal relics of Buddha and his apostles being scarce, were substituted in the sacred stupas and shrines by the well-known creed formulæ—"Ye Dharma", etc., which was impressed on clay and treated as if it were the holy relic of the Buddha.

6. L. L. FERMOR.

Gem Stones from Mogok and other localities.

I. MOGOK AND NEIGHBOURHOOD.

- | | | |
|--------------------------|----|---|
| (1) <i>Ruby</i> | .. | *(a) Natural crystal.
(b) Star ruby. |
| (2) <i>Sapphire</i> | .. | (a) Crystal in the matrix from Kyatpyin.
(b) Natural crystal.
(c) Cut pale blue gem.
(d) Several star sapphires.
(e) Zoned section. |
| (3) <i>Spinel</i> | .. | (a) Crystal in the matrix.
(b) Natural crystals with zircons from roadside, Viewpoint.
(c) Natural crystals—Kanese.
(d) Single crystal.
(e) Cut gems. |
| (4) <i>Zircons</i> | .. | (a) Natural crystals.
(b) Cut gems. |
| (5) <i>Topaz</i> | .. | (a) Natural crystals, Sakangyi.
(b) Cut gems. |
| (6) <i>Amethyst</i> | .. | Cut gem. |
| (7) <i>Chrysoberyl</i> | .. | Natural crystal. |
| (8) <i>Moonstone</i> | .. | (a) Natural crystal
(b) Cut gem. |
| (9) <i>Scapolite</i> | .. | Cut gem. |
| (10) <i>Peridot</i> | .. | Uncut fragments. |
| (11) <i>Tourmaline</i> | .. | Natural crystals. |
| (12) <i>Lapis Lazuli</i> | .. | |

II. OTHER LOCALITIES.

- | | | |
|-------------------------|----|---|
| (13) <i>Garnet</i> | .. | Gems from Sarwar and Rajmahal, Rajputana. |
| (14) <i>Blue spinel</i> | .. | ? Synthetic. Purchased in Cairo. |

7. O. C. GANGOLY.

An Illustrated page from a palm-leaf MS. of the Prajñāparamitā Nepali, Probable date 978 A.D.

The MS. (of 139 leaves) is in a somewhat mutilated condition, though the text is in a fine state of preservation. The colophon has been traced. On the cover there is a writing in very old hand, giving the date of the MS. as Samvat 899 A.D. The character of the script is analogous to that of the Bodleian Library MS. of Prajñā paramitā dated in the 15th year of Ramapala.

8. GEOLOGICAL SURVEY OF INDIA.

- (1) *Casts of the fossil remains of the Peking Man.*
(*Sinanthropus Pekinensis*, Black.)

The brain-case of this fossil man, one of the oldest of the race of Palæolithic men, was discovered in 1929 by Dr. W. C. Pei at Chou

Kou Tien, near Peking, China. The fragments represent portions of the skull of an adolescent youth of about 15 to 18 and of an adult woman. Other human skulls, jaws, and single molar teeth have since been found from this locality. This Peking Man, together with the Piltdown Man *EOANTHROPUS* found in Sussex, England, in 1912, and the Java man *Pithecanthropus* found in Trinil, Java, in 1891, are believed to be the three most primitive members of the human family at present known.

(2) *Fragments of a Meteorite.*

The fall occurred at Khaupur, in the Ghazipur District, United Provinces, on the 8th of July, 1932.

(3) *Unusually transparent Barytes.*

From Balpalapalle, near Betamcherla, Kurnool District, Madras.

(4) *Thin section of Deccan trap lava flow.*

From a boring at Dhanduka, Kathiwar, 2,000 feet deep, showing crystals of Peridot in polarised light.

9. SUNDER LAL HORA.

(1) *Mud-fishing in Lower Bengal.*

On the 2nd of January in connection with my studies on the fauna of brackish waters in the neighbourhood of Calcutta, a visit was paid to Uttar Bhag, a small village on the Piali Nadi about 23 miles to the south of Calcutta. Of the various methods of fishing observed in that locality, there were two that seemed to me of special interest.

(i) It is known that throughout India and Burma, when tanks and paddy fields are drying up, fish are taken in the mud by the hand. At Uttar Bhag a boy was observed collecting fish and crustacea (prawns and crabs) in the low-lying part of a paddy field in small pools of water or what seemed from the distance to be semi-liquid mud. On my taking an interest in his catch, other boys also joined him and in about half an hour's time they brought to me a representative collection of animals from this puddle. It is highly surprising that the collection contained as many as 15 species of fish, 4 species of prawns and 1 species of crab. Most of these species are known to be very hardy, and some of these fishes have been observed to aestivate a few feet below the surface during dry months. There are two important ecological factors which such an animal association has to contend with, namely, the rapidly decreasing quantity of water and the consequent lack of facilities for aquatic respiration, and secondly, the increase of salinity of water due to evaporation.

(ii) It is also known that during rains or at high tide branches of trees are sometimes stuck in suitable, shallow, marshy places to attract fish which resort to this improvised shelter for safety. When the water begins to fall, a fairly high *bund* is made round this area and the water is then bailed out. When the water is almost exhausted, the fish leave the shelter and are readily caught in the mud. Certain species burrow in the mud and are caught by several other interesting devices. If indiscriminate bailing out of water is done, there is a likelihood of some fishes being accidentally thrown out. To prevent this a very interesting device was observed at Uttar Bhag. A small corner of the area enclosed was separated off by a *bund* composed of grass and mud. Such a barrier allows the water to percolate, but does not permit any fish to pass through. Further a piece of old cloth is stretched, like a sail, over this secondary *bund*

so as to prevent any fish from jumping over this obstruction. The bailing of water is done from the smaller enclosed area.

THE TWO FISHING METHODS ILLUSTRATED BY PHOTOGRAPHS, AND THE VARIOUS KINDS OF FISH AND CRUSTACEA COLLECTED FROM THE DRYING UP PADDY FIELD WERE EXHIBITED.

(2) *Peculiar Cat-fishes of the Andes in South America.*

The Siluroids or Cat-fishes are generally characterised by the absence of any kind of scales on their bodies, but in South America there is a large family (Loricariidae) of these fishes, most of the members of which are provided with scutes. They live in rapid waters and are adapted in several ways for adhering to rocks, and for offering less resistance to swift currents. Special attention may be directed to the form of these fishes and to their peculiar suction mouths.

TWO SPECIES OF THIS VAST FAMILY SHOWING INTERESTING FEATURES IN THEIR ORGANISATION WERE EXHIBITED.

10. SATYA CHURN LAW.

Some Studies in Bird Architecture.

The species—all local and resident—whose figures or nests are herein delineated are among a host of rather delicate and diminutive birds which have been thoroughly reconciled to cage-life.

- (1) The Indian White Efo (*Zosterops p. palpebrosa* Temm.) and its nest.
- (2) Do A study in Caliology.
- (3) Nest of Tickell's Flower-pecker (*Dicaeum e. erythrorhynchum* Lath.).
- (4) Do. A pencil sketch.
- (5) The Scarlet-backed Flower-pecker (*Dicaeum c. cruentatum* Linn.).
- (6) Nest of the small Minivet (*Pericrocotus cinnamomeus iredalei* S. Baker).

11. PANCHANAN MITRA and P. C. BISWAS.

(1) *Santali cloth.*

Collected from a village at the base of Digria hill about 4 miles from Jashidhi in Santal Parganas. The Santals spin and weave this standard type of cloth with their own spinning wheel and treadle loom which is of great antiquity in India. It is found in every household, as in Assam, or in the old lake dwellings of Switzerland. The size of the cloth is 5 ft. by 2½ ft., and the colour of it is remarkable as a possible survival in imitation of the bark cloth (*Kashya bostra*). Generally they use it as body cloth, but they wear it also when they go to huts or to other villages.

(2) *Stringed Instrument (musical bow).*

Collected from a village called Chandrapura at Katikund about 18 miles away from Dumka in Santal Parganas. The string is made of Sinew. The resonator is made of wood and is covered by goat skin. According to Mr. Balfour the musical bow is the originator of all stringed musical instruments. According to Miss

Roberts India is the probable centre of origin and dispersal of musical bow. This specimen shows the early transition from simple bow with mouth as resonator as in Hawaii to the fixed simple resonator type. In Munda 'Buang' we have the single string but a movable resonator and is thus a little more primitive than this type. The bow stick is made of hair from horse tail.

(3) *Flute.*

This flute is made of bamboo. It was collected from a village known as Ashan Pahari at Katikund, 15 miles away from Dumka in Santal Parganas. The Santals blow it with the mouth by holding it horizontally. The nose flute is also of this type.

(4) *Fishing Trap.*

It is a bamboo trap, collected from Ashan Pahari in Santal Parganas. The Santals drive bamboos thickly crosswise in a down stream and keep a small opening for outlet, in front of which they place this trap. It is prepared in such a way that fish can enter in but cannot come out of it. It is similar to the Assamese type, and can be traced as far as Pacific.

(5) *Stone Implements.*

Collected from Kunda about three miles from Deoghar proper in Santal Parganas on the bank of a stream. They are small pieces of microlithic flakes possibly used as arrow heads from Mesolithic time till much latter. They are of the same type as pigmy flakes of Europe found in abundance also in South India, Ranchi, Chakradharpur, Mirzapur District, etc., and thus form part of such a widespread culture in India (Vide Mittra, *Pre-historic India*, Second edition, Chapter VII).

12. HEM SINGH PRUTHI.

Maternal Care shown by the Cockroach.

Among insects instances of maternal care are very rarely met with outside the order Hymenoptera (Bees, Wasps, Ants, etc.). It is, therefore, of great interest to see an example from among the cockroaches.

The cockroach, *Phlebotomus pallens*, lives in water. Unlike most cockroaches, it does not lay eggs but gives birth to fully developed young which differ from the mother only in size and the absence of wings. The young are very delicate and readily devoured by their enemies. Soon after their birth they crawl on the body of their mother and take shelter under its wings. The wings are large and arched and together with the upper side of the abdomen, which is depressed, form a chamber inside which the nymphs can be carried about comfortably. The wings are opaque and the young lying under them are so nicely packed (photo) that the human eye cannot detect on superficial examination that the individual is carrying about so many young. The female cockroach does not look at all bulky nor is it awkward in its movements whilst it is carrying them.

In view of the fact that cockroaches have numerous enemies, the habit of carrying the newly born young in the fashion described above seems a very efficient safeguard for the protection of the progeny. Moreover this habit is very useful for spreading the species.

13. S. K. SARASWATI.

The following Exhibits were collected in course of a recent tour in the districts of Malda and Dinajpur.

(1) *Inscribed image of Avalokiteśvara from Poondri, Dinajpur district.*

The image was discovered from a tank at Poondri, a village some 9 miles south-west of Bunshihari, a police station in the south of the district of Dinajpur. The statue, which is in a fair state of preservation, represents the god Avalokiteśvara, the Bodhisattva of the present Kalpa, known in Buddhist literature as the Bhadrakalpa. The base is quite plain but for the inscribed Mahâyâna creed. The backslab is quite plain, but for two *pūrta* motifs on the throne back and two miniature stūpas on two sides of the halo. The paucity of ornaments on the backslab, the rounded stela, the scratched folds of the cloth and the easy and graceful pose combined with a not too slender volume ascribe the sculpture to the 9th century A.D., a date also substantiated by the characters of the inscription.

(2) *Inscribed pedestal from Nahet, Dinajpur district.*

This fragment represents the pedestal of an image of Vishnu as is evident from *Garuda*, his carrier, being engraved on it. The inscription on it most probably reads :

Dānapati adet |

(3) *Image of Vishṇu from Ghanasyampur, Dinajpur district.*

The statue represents Vishṇu of the sub-variety Trivikrama, with *Padma*, *Gadd Chakra*, and *Sūkha* in his four hands beginning from the right lower. He has the usual attendants *Lakshmi* and *Sarasvati* and the two *āyūdhapurusa*s. The image is carved completely in the round from the ankles to the armpits. The backslab shows *gaja-simha*, supporting the throne-back with the makara lintel over which appear, on two sides, a *kinnara* and a *kinnari*. Above, on either side a flying *gandharva* with garland oversects the pointed stela topped by a *kirtimukha*. The pointed stela, the cutting away of the backslab parallel to the outline of the main deity, the raised and wavy folds of the drapery, the wealth of ornaments on the backslab, etc., ascribe the sculpture to the 12th century A.D. to which the letters of the inscription also seem to correspond. The inscription seems to read :

Vasathava |

most probably standing for *Vāsudeva*, a name of Vishnu.

14. M. J. SETH.

(1) *Mogal Coins :—*

Gold Mohurs of Akbar, square and round.

Do. of Jahangeer, square and round.

Do. of Shah Jahan do. and do

Do. of Aurangzebe, round.

'Zodiacal' Mohurs of Jahangeer.

'Portrait' do. of do.

'Zodiacal' Rupees of do.

Square and round Rupees of Akbar.

Do. do. do. of Jahangeer.

- Round Rupees of Shah Jahan, Aurangzebe, Farrukhsiyar, Mohammad Shah, Ahmad Shah, and Shah Alam.
 Lucknow Mohurs and Rupees.
 Murshidabad Mohurs and Rupees.
- (2) *Kushan* gold coins of Kanishka, Huvishka, and Vasudeva.
 - (3) *Gupta* gold coins.
 - (4) '*East India Company*' coins :—
 Single and double-Mohurs of William IV, 1835.
 'English East India Company' Mohurs and $\frac{1}{4}$ Mohurs, struck in the Madras Mint in 1820.
 'Lion and Palm Tree' Mohur of Queen Victoria, struck in the Calcutta Mint in 1841.
 - (5) *Burma* Rupees, with 'peacock' obverse.
 Do. one, two, four, and eight anna pieces and one pice.
 - (6) Silver coins of Nadirshah of Persia.
 - (7) Do. do. of the Saffavi Kings of Persia.
 - (8) Do. do. of the Kajar Kings of Persia.
 - (9) Do. do. of Afghanistan.
 - (10) Do. do. of Turkey, Egypt, and Chinese Turkestan.
 - (11) *Kufic* silver coins.
 - (12) *Parthian* silver and copper coins.
 - (13) *Sassanian* Do. and do. do.
 - (14) *Elymais* (Susiana) copper coins.
 - (15) *Armenian* silver and copper coins of the Rubanian dynasty of Cilicia.
 - (16) Silver 'Tetradrachms' of Selencus and Eukradites.
 - (17) Do. do. and drachuns of Alexander The Great.
 - (18) Gold 'Stater' of Alexander The Great.
 - (19) *Siamese* 'Ticals' (bullet coins) Silver.
 - (20) *Tabora* (German East Africa) '15 Rupien,' of 1916.
 - (21) Silver Rupees of the Pathan Kings of Delhi.
 - (22) *Hyderabad* (*Nizam's*) old and new Rupees.
 - (23) *Nepal* gold Mohur and Rupees.
 - (24) *Kruger* (*Transvaal*) Sovereign and $\frac{1}{2}$ sovereign.
 - (25) Do. Penny.
 - (26) Maria Theresa Dollar of 1780.
 - (27) Copper coin of Tiberius, A.D. 14-37.

15. BAHADUR SINGH SINGHI.

- (1) *An autograph letter written by Lord Clive from Berkley Square, London, dated 31st May, 1764.*

- (2) *A commemorative silver medal of Lord Clive.*

Obv. :—Portrait of Lord Clive with the following inscriptions :—

ROBERT CLIVE BARON OF PLASSEY.

Rev. :—A monument with the inscriptions :—

"1757 Feb. 5 Nabobs Camp destroyed
 June 23 Victorious at Plassey
 1765 established. peace. in. Bengal
 and. made. Omra. of. the. Empire.

Around :—Honour. the. reward of merit.

Below :—ANNO.—1766.

- (3) *An autograph letter written by Arthur Wellesley (Duke of Wellington) from Seringapatam, dated July 1st, 1801.*

- (4) *A silver mounted presentation sword presented by Lord Wellesley to Major Allan with the facsimile of the obverse of the Seringapatam medal engraved on one side of the scabbard and the following inscription on the other side of the scabbard :*

Presented by the Most Noble The Marquis Wellesley Governor General of India to Major Allan Deputy Quarter Master General of the Army before Seringapatam.

- (5) *A commemorative silver medal of Lord Cornwallis.*

Obv. :—Portrait of Lord Cornwallis with inscription in Latin.

Rev. :—Lord Cornwallis receiving the two sons of Tippoo Sultan as hostages ; with Latin inscriptions and date MDCCXCIII =1793.

- (6) *Seringapatam Medal.*

Obv. :—British Lion trampling the Mysore tiger on the field and a flag with Arabic inscriptions date—4 May MDCCXCIX =1799.

Rev :—Bombardment of Seringapatam Fort and Persian inscription and date.

- (7) *An aquatint engraving of Felicity Hall.*

Late the Residence of the Hon'ble David Anstruther near Moorshedabad, Bengal. By Daniell. Published March 1, 1804.

16. THE GENERAL SECRETARY.

- (1) *The Society's publications of 1932.*

- (a) Bibliotheca Indica
- (b) Memoirs
- (c) Journal
- (d) Proceedings, Indian Science Congress.

- (2) *Some acquisitions of interest to the Library during 1932.*

- (a) Presentations.
- (b) Purchases.

- (3) *Some recent publications by Members of the Society.*

- St. Kramrisch : Pala and Sena Sculptures. Calcutta, 1929.
- B. C. Law : Geography of Early Buddhism. London, 1932.
- B. M. Barua : Gaya and Buddha-Gaya. Calcutta, 1931.
- B. Prashad : Pelecypoda of the Siboga Expedition Leyden, 1932.
- B. T. Bhattacharya : An Introduction to Buddhist Esoterism. Mysore, 1932.
- M. Mahfuz-ul Haq : Persian Diwan of Kamran. Calcutta, 1929.
- N. Roerich : Realm of Light. New York, 1931.
- K. C. De : Report on the Fisheries of Eastern Bengal and Assam Shillong, 1910.

- (4) *A Dictionary of the Kāshmirī Language. Compiled by Sir George A. Grierson.*

- (5) *The Society's Council Files from 1926 to 1931.*

(6) The Bibliography of Persian and Arabic Manuscripts.

It has been said that a book without an index is like a house without windows and Samuel Johnson has remarked that a dilettante is the man who does not know what has already been published on his own subject. These two sayings indicate clearly the importance of the science of bibliography which for any branch of study furnishes the indexes to publications and materials. The layman is generally not aware of the immense amount of work existent on bibliographical research. In the field of philology, whatever the language, bibliographical literature is indispensable, and that to an all the greater degree as the literature concerned is only imperfectly known. For libraries concerned with the collection of Oriental manuscripts one of the first demands is a proper classification and a proper description of the material collected. This cannot be done with any measure of perfection unless the material already available elsewhere is compared and utilized. The Society possesses one of the world's important collections of Arabic and Persian Manuscripts, together counting nearly 5,000 volumes. Of these the Persian manuscripts have been catalogued in detail whilst the cataloguing of the Arabic manuscripts has been begun. Incidental to this work is the collection of the published bibliographies in the world's public and private collections. The Society possesses one of the largest collections of material of this kind to be found in India and probably also elsewhere, counting about 170 separate items. These represent not only the great standard catalogues of amplitude, but a number of small items only to be found with difficulty. This collection is exhibited and a brief conspectus of the material is subjoined.

Europe.

Berlin—Royal Library; Munich—State Library; Paris—National Library; Hamburg—Municipal Library; Cambridge—University Library; Cambridge—College Library; Madrid—Escorial Library; Edinburgh—Bibliotheca Lundesiana; St Petersburg—Imperial Public Library; London—India Office; Edinburgh—University Library; Vienna—Court Library; Leyden—Academy; Cambridge—Prof Browne's Library; Cambridge—Trinity College Library; Madrid—Junta Library; London—British Museum; St. Petersburg—Institute of Oriental Languages; Oxford—Bodleian Library; Uppsala—University Library; Glasgow—Hunterian Library; Padua—Bibliotheca Naniiana; Lisbon—Academy of Sciences; Strassburg—University Library; Dresden—Royal Library; Rome—Cactani Library; Gotha—Library; Madrid—Tetuan Collection; Copenhagen—Royal Library; London—Royal Asiatic Society; Leipzig—German Oriental Society; Turin—Royal Academy of Sciences; Gotha—Ducal Library; Tübingen—University Library.

India.

Patna—Bankipore Library; Calcutta—Buhar Library; Hyderabad, Deccan—Asifiyya Library; Rampur—State Library; Calcutta—Asiatic Society of Bengal; Mysore—Tippoo Sultan Library; Madras Government Library; Calcutta—Madrassa Library; Calcutta—Asiatic Society of Bengal, Hyderabad Collection; Calcutta—College of Fort William; Patna—Khuda Baksh Library; Bombay—Mulla Feroz Library; Lucknow—King of Oudh Library.

Islamic East.

Cairo—Khedivial Library; Beyrouth—St. Joseph Library; Mosul—College Libraries; Rabat—Protectorate Library; Cairo—Khedivial

Library; Constantinople—Private 2; Constantinople—Aya-Sofia Library; Constantinople—Madrassa-i-Sarviti; Tehran—Library of the Majhlis; Fez—Mosque Library; Tlemcen—Medersa; Mount Sinai—St. Catharine's Convent; Tunisia—Various; Constantinople—Private Library of H.M. the Sultan.

America.

Princeton—University Library.

Private Collections.

Landberg (Berlin); Clément Huart (Paris); Charles Schefer (Paris); Merlin Haug (Germany); Hiersemann (Leipzig); Brill (Leiden); Kremer (Germany); Marsden (London); Bernard Quaritch (London); Paul Sbath (Cairo); Baron Silvestre de Sacy (Paris); Sprenger (Giessen).

Miscellaneous.

Constantinople, Cairo; Arabic Papyri; Some rare Persian MSS.

Printed books.

Chauvin—Arabic works published in Europe from 1810 to 1885; British Museum (London); Bibliography of Egypt and the Sudan; Omar Khayyam Bibliography; Sarkis' Bibliography of printed books in Arabic since the beginning of printing to 1919.

ANNUAL REPORT FOR 1932.

The Council of the Asiatic Society of Bengal has the honour to submit the following report on the state of the Society's affairs during the year ending the 31st December, 1932.

1. Ordinary Members.

(1) *Totals*.—The calculated total of Ordinary Members on the roll of the Society at the close of 1932 was 452 as against 519 at the close of 1931, a net decrease of 67 during the year. This is the fourth annual decrease in membership in succession, although the decrease is 10 less than that of the year before. At the end of the year the total was almost equal to that at the end of 1925, and is still 115 higher than at the end of 1923 which was the Society's latest low-ebb time in point of membership.

(2) *Gains and losses*.—These were as follows during the year :—

<i>Gains.</i>			<i>Losses.</i>		
New elections	..	21	Application withdrawn	..	1
			Elections lapsed	..	2
			Elections carried forward	..	3
			Deaths	..	5
			Resignations	..	48
			Rule 38	..	21
			Rule 40	..	8
Total	..	21	Total	..	88

Initial total 519 ; net loss 67 ; final total 452

(3) *General*.—The continued loss of membership during 1932 has been foreseen in the previous years' report and no hope is entertained that for the next two or three years conditions will materially improve. As long as the present financial crisis persists in the world the Asiatic Society of Bengal must share the fate of most similar Societies, which is to receive a maximum of resignations and a minimum of accessions. The number of new admissions was 21, only very slightly more than in the year before. It may be that the slight increase in admissions and decrease in losses indicates that the worst trouble is over, though full and satisfactory recovery cannot be expected very soon. We have not yet any justified ground for great optimism regarding the strength of our ranks for the next few years. The position is not satisfactory.

It should be noted that the total decrease in membership is almost identical with the decrease in the number of non-resident Members, who naturally do not have the benefit of

the use of the Rooms of the Society and the daily facilities of its Library. The resident total remained almost the same, which is a matter of some satisfaction.

(4) *Rule 38.*—This Rule, dealing with members whose subscriptions are in arrears, was again strictly applied and the names of no less than 21 Members were consequently removed from the roll for this cause. This number is exceptionally and regrettably large—higher than at any time during the last ten years. A simple postcard from such Members as have lost interest in the Society or who find it, for whatever reason, inconvenient to continue their membership, is sufficient to regularise their resignation. To be removed from the membership register for non-payment of dues is not dignified and debars the defaulting Member from any future re-entry in the Society unless he pays all arrears and such further subscriptions as he would have been chargeable with under the Rules if his membership had continued. In several cases such defaulters have later found cause for regret for not having properly resigned and for having allowed their membership to lapse. There is in this matter still considerable slackness.

(5) *Membership List.*—The customary and very necessary detailed cross-check of the membership lists with the membership card index was made at the end of the year.

(6) *Non-resident Members.*—Their total at the end of the year was 126, leaving more than ever room for substantial expansion.

(7) *Life-members.*—The total of our Life-members has increased by 2 and now stands at 54. None were lost by death; and two Ordinary Members compounded during the year. We again press upon the older Members of about 20 years' standing, or over, the desirability of compounding for a life-membership. After such a long participation in our work the compounding fee is relatively small, and a most valued asset to the Society is the continued presence in its ranks of those old friends and colleagues who have so long shared its labours and have helped to bear its burdens. Especially those who after an honourable career in India retire to Europe should maintain their connection with the Society at a relatively small cost to themselves but to the great satisfaction of those who continue the work in India.

(8) *Deaths.*—This year the loss to the Society by death has been less heavy than the year before. Amongst the distinguished and specially valued Members lost to us, whose memory will be cherished, and for whose departure the Society is the poorer, the following may be mentioned :—

Vepin Chandra Rai (Ordinary Member, 1880, Senior Member of the Society).

Geo. B. MacNair (Ordinary Member, 1930).

R. Douglas (Ordinary Member, 1930). Assassinated.

2. Associate Members.

(1) During 1932 no new Associate Members were elected but three already on the roll were re-elected for a further period of five years whilst in one case the period of membership was not so renewed.

(2) The present number stands at 7; statutory maximum 15.

3. Special Honorary Centenary Members.

(1) Our only surviving Special Honorary Centenary Member still remains with us.

4. Institutional Members.

(1) During the year no Institutions were newly admitted to this class of membership. Their total number is 5.

5. Ordinary Fellows.

(1) At the Annual Meeting held on the 1st February, 1932, the following Member was elected an Ordinary Fellow :—
M. J. Bacot.

(2) Two Fellows were lost under the provisions of Rule 38.
Sir Abdulla A. Suhrawardy (1918).
Dr. G. N. Mukhopadhyaya (1923).

(3) At the end of 1932 the number of Ordinary Fellows was 45; statutory maximum 50.

6. Honorary Fellows.

(1) During the year no new Honorary Fellow was elected.

(2) One Honorary Fellow was lost by death :—
Dr. W. Caland (1930).

(3) At the end of 1932 the number was 28; statutory maximum 30.

7. Obituary.

(1) During the year the Society received to its great regret news of the death of the following distinguished relations :—

Le R. P. E. E. L. M. Durand, Corresponding Member of the French School of the Far East, Hanoi.

Le R. P. Maximilian Marie Paul Arnoulx de Pirey, Corresponding Member of the French School of the Far East, Hanoi.

B. De, Editor of a work in the *Bibliotheca Indica* and one-time Council Member of the Society.

Dr. Barton Warren Evermann, Director of the Museum and of the Steinhart Aquarium of the California Academy.

8. Condolences.

(1) The Council expressed condolences to the relatives of the following distinguished personalities deceased during the year :—

Dr. W. Caland, Honorary Fellow of the Society.

Sir Ronald Ross, a recipient of the Barclay Memorial Medal.

9. Council.

(1) The Council met 11 times during the year. The attendance averaged 8 of the 19 component members.

(2) The following resolutions of thanks were passed by the Council :—

To the Hon'ble Sir B. L. Mitter for his presentations to the Society of the Full Power granted to him by his Majesty to represent the Empire of India at the League of Nations.

To Dr. Gilbert P. Whitley and Dr. S. L. Hora for the presentation to the Society of a valuable autograph MS. of Hamilton Buchanan on the Fishes of Lower Bengal.

To Dr. Brahmachari and Mr. James Insch for meeting the cost of the purchase of a Dictionary of the living High Russian Language.

To the outgoing members of Council for the services rendered by them to the Society.

To Dr. Brahmachari for the valuable services rendered by him to the Society as Acting President, and for the completion of the set of photographs of the past Presidents of the Society presented by him.

To President, Sir C. C. Ghose, for his offer to defray the expenses of light refreshments to the Members of the Society before the Monthly General Meetings.

To Dr. B. C. Law for his presentation to the Society of an enlarged coloured photograph of the late MM. H. P. Shastri.

To Mr. James Insch for the valuable services rendered by him to the Society by his unstinted labour and profitable advice as its Honorary Treasurer.

To Sir J. C. Coyajee for his presentation to the Society of an English edition of Swedenborg's works in 28 volumes.

To Mrs. Brahmachari for the presentation to the Society of a marble bust of Dr. Brahmachari.

To Mr. C. W. Gurner for his presentation to the Society of a set of the *Journal* of the Hellenic Society, Great Britain.

10. Office Bearers.

(1) The changes in the Council during the year were as follows :—

Mr. James Insch resigned from the Council with effect from the 31st July.

Mr. K. C. Mahindra was re-appointed Treasurer from the 1st August.

Dr. S. L. Hora was appointed Council Member from the 1st August.

Lt.-Col. R. Knowles resigned from the Council with effect from the 27th August.

(2) Absences other than those mentioned above were :—

Mr. Gurner, from 7-4-32 to the end of the year.

Dr. Jenkins, from 1-4-32 to the end of the year.

Sir David Ezra, from 4-5-32 to 1-11-32.

Mr. Fawcus, from 20-4-32 to 1-11-32.

Dr. Fernor, from 4-5-32 to 16-11-32.

Sir C. C. Ghose, from 10-5-32 to 29-5-32, from 2-10-32 to 13-11-32 and from 15-12-32 to the end of the year.

Sir J. C. Coyajee, from 26-5-32 to the end of the year.

Mr. Mahfuzul Haq, from 15-5-32 to 1-7-32 and from 1-10-32 to 1-11-32

Dr. Brahmachari, from 29-5-32 to 27-6-32.

Dr. Guha, from 9-5-32 to 10-7-32 and from 1-12-32 to 15-12-32.

Col. Sewell, from 1-1-32 to 22-9-32.

11. Committees of Council.

(1) The Standing Committees of Council during the year, namely the Finance, Publication, and Library Committees, met monthly, except in September.

(2) Special Committees were appointed, one to address the Government of India on behalf of the Society on the proposal to abolish the post of Director, Zoological Survey of India, and another to enquire into, and report on, the delay in the issue of the Society's *Journal*, and also to devise means to speed up the publication and to make good the arrears.

The Society, having originally furnished important and valuable material to the collections under the custody of the Zoological Survey of India in the Indian Museum and being directly interested in their proper preservation, views the proposed abolition of the post of Director with grave apprehension.

The *Journal* Committee under the active leadership of Dr. S. L. Hora, had already achieved considerable results by the end of the year.

12. Finance Committee.

(1) The Finance Committee continued during the year to meet on dates different from, and a few days prior to, those of the Council Meetings.

(2) A Special Meeting to frame the budget for the next year was held in December.

13. Office.

(1) *General Secretary.*—The General Secretary continued to perform the amalgamated duties of Secretary and Assistant Secretary and was not absent on leave during the year. He completed his tenth year of office and for the first time during that period was obliged, for reason of health, to give up attending the office on holidays and Sundays. This immediately reacted unfavourably on the amount of work performed and

pointedly brought home the fact that a large portion of the work of previous years had been accomplished by working overtime, which this year for the first time it was no longer found possible to give. This led to immediate results of arrears and complications. In previous reports reference has been made more than once to the small margin of leisure in the Society's office, so indispensable for smooth working and creative activity as against mere routine action.

(2) *Staff*.—For the first time in many years not a single change in the office staff of the Society has to be recorded. Attendance and spirit was generally satisfactory, but much greater initiative on the part of the individual members remains called for. Qualitative improvement is still desirable in many ways. Other general considerations concerning the staff have been detailed in previous reports and, not having changed, need no repetition this year.

(3) *Subordinate Staff*.—In the subordinate staff the usual minor changes took place which do not call for comment.

(4) *Correspondence*.—The difficulties of this part of the work of the office have been fully described in several previous reports and there is no sign of their diminishing. In a way the office of the Society is almost a Secretariat without having a Secretariat staff. For the reason detailed in the first paragraph of this section there was a falling off in correspondence and only 2,163 letters went out, the lowest recorded total since 1923. The most difficult period in this respect occurs from November to February. In November and December the office is very severely pressed by work for the Indian Science Congress and in January by work connected with the winding up of the affairs of the year, the preparation of the annual report, and the annual meeting. During this winter period correspondence falls behind and by the time it is once more caught up a new period of pressure occurs. The General Secretary has written in his decennial period of office nearly 30,000 letters and dealt with an equal number of incoming ones, the bulk almost representing that of an *Encyclopædia Britannica*. For years only one typist was at his disposal and all the letters had to be drafted by his own hand. During this last year a stenographer has come to facilitate the work, and this improved matters greatly. But correspondence is not decreasing in any direction and will remain one of the great problems before the Society. Its volume would expand immediately when more and fuller letters could be sent out. As it is, the Society's capacity to deal with this work limits it, but not the demand and not the measure of desirability.

(5) *Council Circulars*.—The number of Council and Committee circulars issued during 1932 was exactly the same as in the previous year, namely 126. The very important activity of collecting all Council circulars of the year, together with

all relative documents into separate volumes, was continued, and two further volumes for 1926 and 1931 were added to the series which now comprises 6 volumes. Two further volumes, for 1932 and 1925, are almost ready for binding.

(6) *Files*.—During the year intermittent work was continued with regard to our files, old and new, but no real progress can be reported. On the other hand an enormous mass of miscellaneous old matter, the inchoate accumulation of more than half a century, has received close attention and a great number of valuable items have been retrieved from the mass. We refer to the paragraph under this sub-heading in the previous report.

(7) *Stock-room*.—Very little attention was given this year to the labelling, bundling, and registration of the contents of the stock-room. As has been previously reported, the main work has been performed, but the publications of the year and certain residuals are still to be dealt with in order to complete the work. These residuals will be taken up as soon as time can be found for it. Several odds and ends have still to be gathered up.

(8) *Distribution*.—No change was made in the mode of distribution of our publications and notices. An appreciable amount of issues of the Bibliotheca Indica was again distributed during the year.

(9) *Addresses*.—The printed address labels remained in use and the system of constant revision and addition which has been adopted enables us to keep the printed addresses up-to-date month by month.

(10) *Card Register*.—The card registers of the Society's membership and of that of the Indian Science Congress were kept up-to-date and checked at the close of the year.

(11) *Stationery*.—As the administration regarding this item is now satisfactorily arranged, the subject does not call for special remarks.

(12) *Circulars and Forms*.—The number of these printed during the year was 52, being a few less than the year before. About Rs. 768 were expended under this head.

(13) *Office Furniture*.—A new block cabinet was acquired, making five in all now in the Society's possession. All blocks were inspected, cleaned, and revarnished. Six small collapsible tables were purchased. Several old tables and desks and most of the old electric fans will need renewal in a not far distant future. Gradual but regular renewal of old pieces of furniture in small instalments should remain a constant policy.

(14) *Office Manual*.—This still remains a desideratum.

(15) *Arrangement*.—No change was made in the present disposition of the rooms and their contents.

(16) *General*.—For many years the point has been stressed in the annual report that the reputation and functions of the

Society cause demands to be made on it which its financial position does not enable it to cope with to the fullest extent. Work to be performed, and performed well, demands staff—qualified staff—and a staff means salaries. In the year under review a total expenditure of nearly Rs. 55,000 included over Rs. 31,000 under the head of salaries and allowances, which is an enormous proportion. Yet the actual expenditure might, without waste, be much higher. If the present financial depression continues and if cuts in Government grants are maintained or even increased, the problem of how to find the required money will become even more acute, and the question has to be very seriously considered whether the Society can go on spending as much on its staff as it does at present. For two years already no increment of pay has been given to the members of the staff, and now the question becomes urgent whether even more drastic steps may not have to be taken, either by a reduction of salaries or a reduction of staff. Since the Society's correspondence is already inadequate to the demand and the question of the expense incurred on publications has become a very grave one, not to speak of desirable expenditure on the library, this problem is a matter of considerable apprehension and will have to be tackled definitely unless conditions improve. The demands of our Members, of the public, and of our scholarly relations throughout the world, are very great, and Members should clearly realise that the productive capacity of the office has its limits fixed by the Society's financial resources.

14. Rules and Regulations.

During the year no changes were made in the Rules and Regulations of the Society. The Regulations framed last year for the award of the Paul Johannes Brühl Memorial Medal were confirmed by the Society.

15. Indian Science Congress.

(1) *Nineteenth Session*.—The Nineteenth Annual Meeting of the Indian Science Congress was held in Bangalore, from January 2nd to January 8th, 1932, under the patronage of Colonel His Highness Maharaja Sir Sri Krishnaraja Wadiyar Bahadur, G.C.S.I., G.B.E., Maharaja of Mysore.

(2) *President*.—Rai Lala Shiva Ram Kashyap Bahadur, B.A., M.Sc., I.E.S., Professor of Botany, Government College, Lahore, was President of the Congress.

(3) *Proceedings*.—The *Proceedings* of the Congress were published in the first week of December. The publication contained 580 pages and 13 plates, 6 pages of letterpress less and 13 plates more than the year before. The number of

abstracts sent in for reading to the Congress numbered this year 693 as against 699 last year.

(4) *Administration*.—During the latter months of the year the usual administrative work for the Congress in connection with the next Session (Twentieth Congress) to be held in Patna was performed by the Society's office, which also attended to the general administration of the Congress when this is not in session.

(5) *Programme and Abstracts*.—As in the previous years the programme of the meeting and the abstracts were sent, as far as was practicable, by post to all Members who had applied for membership before the date of their publication. This year this date was again late, the 15th December, leaving not much more than a barely sufficient margin of time to reach distant Members before their departure for Patna. Though there was this year still some amount of very late enrolment there was a decided improvement in this respect, no doubt, chiefly due to the new rules now in force.

(6) *Finance*.—The Congress finances remained separate from those of the Society.

(7) *General Secretaries*.—The General Secretaries to the Congress were Prof. S. P. Agharkar and Prof. H. B. Dunncliff as in the previous year, whilst towards the end of the year Mr. W. D. West succeeded Prof. H. B. Dunncliff.

(8) *Reprints*.—The Society did not proceed further during the year with the reprint of old issues of *Proceedings* but a reprint of those of the 3rd Congress is in type and will be published during the ensuing year. The continuation of the series of reprints depends on more favourable financial conditions.

(9) *Constitution*.—The new constitution adopted in the eighteenth meeting of the Congress worked smoothly and facilitated in many ways the administrative work performed by the Society. The amount of labour that has to be given to the preparation of the Congress and its *Proceedings* is in no way diminishing and remains considerable, tending to crowd out, during November and December, the Society's own activities as far as the office is concerned.

In two respects much immediate improvement is still to be made. Supply of copy of abstracts and Presidential Addresses should be speeded up and the abstracts themselves need more careful editing before they come to the Society to be forwarded to the press for composition. The formation of a standing body of sub-editors might well be considered. Such a body would create a tradition which would enable continuity to be arrived at and would generally make for quicker and more reliable work.

16. Indian Museum.

(1) The Society's representative on the Board of Trustees of the Indian Museum, under the Indian Museum Act, X of 1910, continued to be Rai Upendra Nath Brahmachari Bahadur who was re-appointed as such for a further period of three years.

17. Kamala Lectureship.

(1) The vacant place of a nominee of the Council to serve on the Election Committee of the Kamala Lectureship, administered by the Calcutta University, which had arisen through the death of MM. Haraprasad Shastri, last year, was filled by the nomination of Rai Upendra Nath Brahmachari Bahadur.

18. Deputations.

(1) The following invitations to send representatives to various functions were received as follows :—

- (i) Ninth International Congress for the History of Medicine, Bucharest, September, 1932
- (ii) International Congress of Mathematics, Zurich, September, 1932.
- (iii) German Society for Natural History and Ethnography in Tokyo, celebration commemorating the 60th Anniversary of the Foundation of the Society, March, 1933.

19. Honours.

(1) Amongst the Honours conferred during the year several were, as usual, bestowed on members of the Society. Mr. Alfred Watson and Lt.-Col. Hasan Suhrawardy received the honour of Knighthood. Sir J. P. Thompson received the K.C.S.I., and the Hon'ble Mr. B. K. Basu received the C.I.E.

20. Congratulations.

(1) The Society sent its cordial congratulations to Dr. Bains Prashad on the occasion of his election as an Honorary Member of the California Academy of Science, San Francisco, and again on the occasion of the publication of his volume on the Pelecypoda in Prof. Weber's series on the scientific results of the Siboga Expedition.

(2) Congratulations were also sent to several of the above recipients of Civic Honours.

21. Visits.

(1) During the year the Society was again visited by a number of distinguished persons from various parts of the world. Asia contributed visitors from India and Java.

Europe contributed visitors from Germany, Hungary, England, France, and Sweden. The United States of America and South Africa were also represented. The visitors, as usual, represented the most diverse branches of scholarship. A valued visitor was the Hon'ble Mr. C. Zaffrulla Khan, Member for Education, Health and Lands, Government of India.

22. H.E. the Governor of Bengal.

(1) The incoming Governor of Bengal, the Rt. Hon. Sir John Anderson, P.C., G.C.B., G.C.I.E., graciously accepted the invitation extended to him to accept the Office of Patron of the Society, jointly with H.E. the Viceroy and Governor-General of India.

23. Social Functions.

(1) On March the 1st, the President of the Society gave an At Home to meet H.E. Colonel Sir Francis Stanley Jackson, Patron of the Society and Governor of Bengal, on the eve of his relinquishing office and departure from India. His Excellency was accompanied by Her Excellency Lady Jackson. A select gathering attended to bid farewell to Their Excellencies, and the meeting was a most successful function. The Council expressed its thanks to Sir C. C. Ghose for providing the entertainment.

(2) Sir C. C. Ghose also generously enabled the Society to maintain the ancient practice of providing light refreshments to the Members present before the General Meetings.

24. Elliott Prize for Scientific Research.

(1) The annual prize for 1931, for research in Geology and Biology (including Pathology and Physiology), was in the Annual Meeting of 1932 awarded to Mr. T. C. N. Singh of Cuttack.

(2) The prize offered for the year 1932 was for Mathematics. Papers were submitted in competition for the prize by four candidates. The award will be made in the Annual Meeting of 1933.

(3) The prize for next year, 1933, will be for research in Chemistry.

25. Barclay Memorial Medal.

(1) The (biennial) award of the Barclay Memorial Medal for 1931 was announced in the Annual Meeting of 1932. The medal was bestowed on Lt.-Col. Robert Beresford Seymour Sewell. The General Secretary received the medal on behalf of Col. Sewell.

(2) The next award will be made in 1934.

26. Sir William Jones Memorial Medal.

(1) The next (biennial) award of the Sir William Jones Memorial Medal, for 1932, for Asiatic Researches in Philosophy, Literature, and History, will be announced in the Annual Meeting in February, 1933.

27. Annandale Memorial Medal.

(1) The next (triennial) award, for important contributions to the study of Anthropology in Asia, will be announced in the Annual Meeting in February, 1934.

28. Joy Gobind Law Memorial Medal.

(1) The next (triennial) award of the Joy Gobind Law Memorial Medal, for 1932, for conspicuously important work on Zoology in Asia, will be announced in the Annual Meeting in February, 1933.

29. Paul Johannes Brühl Memorial Medal.

(1) The first (triennial) award of the medal for important contributions to the study of Asiatic Botany was made to Reverend Ethelbert Blatter, S J

(2) The next award will be announced in the Annual Meeting in February, 1935

30. Calcutta Indian Science Congress Prize.

(1) The first award is to be made in connection with the next Session of the Congress to be held in Calcutta, and regulations regarding the award are to be framed by the Council of the Society prior to the date of that Session

31. Society's Premises and Property.

(1) A sum of Rs. 2,000 was again set aside during the year to be credited to the Building Repairs Fund.

(2) The various desiderata and problems existing under the heading Premises and Property have been mentioned in the Annual Reports of the last few years and have to be kept in mind until realization.

(3) The extensive repairs to the buildings and its general overhauling, begun towards the end of the previous year, were successfully terminated by the end of January and the Annual Meeting took place in a thoroughly new looking building. The cost incurred was considerable and with the petty repairs came to a little over Rs. 9,000, reducing the Building Fund to a

balance of about six thousand rupees. At the same time the Building Repairs Fund has been credited with two thousand rupees during the year and as this measure will be repeated during coming years there should be at the end of three years sufficient money in this fund to meet the regular triennial repairs.

32. Accommodation.

(1) The old problems still needing attention are: the provision of a set of small work-rooms for various uses, foremost of all for the archives and the editorial work of the Society, extension of the steel shelving in the Library and better shelving in the stock-rooms. But, as remarked before, a menacing cloud on the horizon is, above all, the fact that our library rooms are gradually being filled and that the need of extension of the space available for the stacking of books becomes daily more imminent. We do not yet see where to gain the additional accommodation.

33. Artistic and Historical Possessions.

(1) In commemoration of the termination of the Kashmiri Dictionary (*Bibliotheca Indica*) by Sir George Grierson, a veteran Member who joined the Society in 1876 and is now 83 years of age, the Council decided to show its regard for this great linguist and great friend by raising a memorial to him in the Rooms of the Society. The Council subscribed the necessary amount and commissioned an Italian artist, Signor A. Marzollo, to execute a terra-cotta bust of Sir George. The very successful and artistic bust was received towards the end of the year and has been installed in the Council Room.

(2) Mrs. Brahmachari presented to the Society an extremely life-like marble bust of her husband, Dr. U. N. Brahmachari, a past President and an old Member of the Society, and the holder of several offices on the Council for many years past. The bust executed by the same artist, A. Marzollo, was gratefully accepted and has been installed in the main hall of the building.

(3) Dr. B. C. Law presented the Society with a life-size coloured photograph of the late MM. Haraprasad Shastri. This striking portrait has been gratefully accepted and has been hung in the Society's Rooms.

34. Presentations, Donations, and Legacies.

(1) Except for the presentations mentioned under the previous heading and those to be mentioned under the next, no presentations, donations or legacies, were unhappily forthcoming. Does *no* Mæcenas know of the Society?

35. Library.

(1) *Permanent Library Endowment Fund*.—The fund received no further donations during the year. The total invested capital remained (face value) Rs. 12,000 in $3\frac{1}{2}$ per cent. Government paper. The accumulated interest will permit the purchase of one further paper to the face value of Rs. 1,000 during next year. The total investments in $3\frac{1}{2}$ per cent. paper have to reach the face value of Rs. 30,000 before income from the fund can be utilized for library expenditure. We recommend this fund to our well-wishers.

(2) *Accessions*.—The accessions to the Library during the year, exclusive of about 200 periodicals received through exchange or otherwise, numbered 216 volumes, out of which 84 were purchased and 132 were acquired by presentation.

The allocation for the purchase of books for the year was Rs. 2,500, but actually an amount of Rs. 2,174 was spent. For the new year the grant has been decreased by Rs. 500 and fixed at Rs. 2,000. This decrease is regretted but cannot be avoided.

The more important items of presentation are given below.

Mr. C. W. Gurner presented the *British Journal of Hellenic Studies*, Vols. 41–51. We also received through the Presidency College, Calcutta, on behalf of Sir J. C. Croyajee, a set of the works of Swedenborg in 28 volumes. Dr. Whitley of Sydney, Australia, presented through Dr. Hora a valuable autograph manuscript of Hamilton Buchanan, in Latin, on the Fishes of Lower Bengal.

The more important presentations received are given below :—

Presentations of Interest :—

- (1) Francis Buchanan Hamilton : *Piscium Bengalæ Inferioris Delineationes* (Ms.). (Dr. S. L. Hora on behalf of Mr. G. P. Whitley.)
- (2) Henry Cousens : *Somanatha*. Calcutta, 1931. (Govt. of India.)
- (3) A. N. J. Th. A. Th. van Der Hoop : *Megalithic Remains in South-Sumatra*, Zutphen, n.d. (Author.)
- (4) Muhammad Hamid : *List of Ancient Monuments in Bihar and Orissa*. Calcutta, 1931. (Govt. of India.)
- (5) N. J. Krom : *Hindoe-Javaansche Geschiedenis*. The Hague, 1931. (Publishers.)
- (6) John Ashton : *Curious Creatures in Zoology*. New York, n.d. (Dr. S. L. Hora.)
- (7) Manoranjan Ghosh : *Rock-paintings of prehistoric Times*. Calcutta, 1932. (Govt. of India.)
- (8) Sir Edward Maclagan : *The Jesuits and the Great Mogul*. London, 1932. (Publishers.)
- (9) N. E. Parry : *The Lakhers*. London, 1932. (Assam Administration.)
- (10) G. Dandoy : *L'ontologie du Vedanta*. Paris, 1932. (Author.)
- (11) M. Abid Ali Khan : *Memoirs of Gaur and Pandua*. Calcutta, 1931. (Govt. of Bengal.)

- (12) Saktisangama Tantra. Vol. I. Baroda, 1932. (Gaekwad's Oriental Ser., Vol. 61.) (Oriental Inst., Baroda.)
- (13) Sir John Marshall: Mohenjo-daro and the Indus Civilization, 3 vols. London, 1931. (Govt. of India.)

Of special interest are the new accessions which represent works produced by Members of the Society. These were partly acquired by presentation and partly by purchase. The following may be mentioned :—

Accessions of works written by Members :—

- (1) St. Kramrisch: Pala and Sena Sculptures. Calcutta, 1929. (Author.)
- (2) B. C. Law: Geography of Early Buddhism. London, 1932. (Author.)
- (3) B. M. Barua: Gaya and Buddha-Gaya. Calcutta, 1931. (Purchased.)
- (4) B. Prashad: Pelecypoda of the Siboga Expedition. Leyden, 1932. (Purchased.)
- (5) B. T. Bhattacharya: An Introduction to Buddhist Esoterism. Mysore, 1932. (Purchased.)
- (6) M. Mahfuzul Haq: Persian Diwan of Kamran. Calcutta, 1929. (Author.)
- (7) N. Roerich: Realm of Light. New York, 1931. (Author.)
- (8) K. C. De. Report on the Fisheries of Eastern Bengal and Assam. Shillong, 1910. (Author.)

(3) *Accessions Lists*.—For reasons of economy and because accessions must for the moment remain less numerous than before, it is intended to publish the lists of additions to the library only once a year. The list for 1932 is in the press.

(4) *Preservation*.—The use of *nim* leaves and the practice of dusting the volumes with an insecticide powder were continued.

(5) *Binding*.—During the year 660 units, including books, pamphlets, and periodicals, were bound at a cost of Rs. 750, out of total budget allowance of Rs. 800 sanctioned for the purpose.

Since 1923 about 12,260 units have been bound, and practically all arrears in binding have now been made good. In future, if the Society does not again allow itself to fall behind in this respect, binding will be on the whole limited to new accessions and renewals.

(6) *Arrangement*.—The segregation of the pamphlets, about 3,000 in number, was practically completed. No other rearrangements were effected.

(7) *Catalogue*.—The new authors' catalogue of books in European languages made no further progress. Necessities of economy forbid great expenditure on the continuation of this costly work.

(8) *Shelving*.—Installation of special steel shelving for MSS. and books in the western section remains to be effected, and provision has also to be made for further steel shelving, especially for the current accessions of periodical literature.

The Librarian reports that our available shelving space for printed books is rapidly coming to an end. This will in the near future constitute a serious problem.

(9) *Finance*.—The report of two years ago stated as follows :—

‘Attention should once more be drawn to the fact that a sum of Rs. 4,000 annually, which constitutes the utmost limit which the Society at present can devote to purchase and binding of books, is entirely inadequate to build up or to maintain a first-class library. Administration and upkeep of our present collection demand at least an equal amount annually, and the total expenditure is a heavy burden on the Society’s yearly budget. It is impossible to stress sufficiently the necessity for the speedy creation of a considerable endowment fund for our library. We have made a beginning, but that beginning is small. We need the generous help of all friends interested in our work and in learning in India, to make the little twig recently planted grow rapidly into a sheltering banian.’

For 1931 the allocation of Rs. 4,000 were reduced to Rs. 3,300. For 1932 this sum was again reduced to Rs. 2,800 and now for 1933 again to Rs. 2,000. Comment is superfluous.

36. Finance.

(1) Appendix III contains the usual statements showing the Society’s accounts for 1932. No change has been made in the form of their presentation since the previous year. No new statement occurs.

(2) One statement, still carried over without change from the previous year pending final ascertainment of commitments, is :—

Statement No. 17, International Catalogue of Scientific Literature, London.

During the year correspondence has been received from the Royal Society of London regarding the liabilities of the Asiatic Society of Bengal to the Royal Society in respect of this fund. The position is of considerable obscurity and needs close investigation, as all transactions relating to this fund date from prior to 1923. It is hoped, however, that the scrutiny which is now being made will lead to definite results so that the fund may be liquidated in the near future.

(3) The other statements are presented as in the previous year and do not call for special comment.

(4) The fund accounts again show their invested assets written down to the market values as at the end of the year, and the Investment Account, Statement No. 26, shows the allocations of invested paper to each fund specifically, whilst both market and face values of the investments are shown in it.

(5) With regard to the various funds connected with the award of gold memorial medals by the Society a difficulty arose during the year owing to the enhanced and unforeseen rise of the price of gold. Some of the endowments are now no longer sufficient to provide from their income a gold medal of the size of the existing dies at the prescribed intervals. The matter has been scrutinized by the Finance Committee and Council, and it has become evident that in future an adequate margin will have to be provided for in the case of similar endowments being accepted by the Society. Periodical renewal of the dies has also to be contemplated. The matter is still under consideration in so far as the present endowments are concerned.

(6) Statement No. 28 shows the balance sheet of the Society and of the different funds administered by and through it.

(7) The funds belonging to, or administered by, the Society may be classified as follows :—

(a) General Fund.

(i) Permanent Reserve.

(ii) Working Balance.

(b) Specific Funds belonging to the Society.

(c) Funds administered by the Society.

At the end of the year, the position of these funds, as compared with their position at the end of 1931, was as follows :—

	Face Value.	Market Value.	Face Value.	Market Value.
	31st Dec., 1931.	31st Dec., 1931.	31st Dec., 1932.	31st Dec., 1932.
1. General Fund ..	2,96,900	1,68,600	3,06,600	2,33,600
(a) Permanent Reserve	2,46,500	1,29,040	2,47,700	1,82,130
(b) Working Balance ..	50,400	39,560	46,000	41,500
2. Specific Funds belonging to the Society ..	49,200	36,700	38,000	35,300
3. Funds administered by the Society	30,300	23,500	30,300	27,500
	3,76,400	2,28,800	3,62,000	2,86,430

(8) The amount standing to the credit of the Permanent Reserve Fund at the end of the year was Rs. 2,47,700, Face Value, invested in $3\frac{1}{2}$ per cent. Government Paper.

During the year Rs. 480 were received through admission fees, and two members compounded their subscriptions to a total amount of Rs. 420. The amounts thus received together with the sum of Rs. 35-11, cash balance, brought forward from 1931 under this head aggregated Rs. 935-11. This sum was transferred to the Permanent Reserve in the usual manner, by conversion at the market rates as on the 31st December, 1932, of Government Paper $3\frac{1}{2}$ per cent. to the Face Value of

Rs. 1,200 belonging to the Temporary Reserve of the working balance whilst a cash balance of Rs. 52-3 is being carried over to the ensuing year, for adjustment under this head.

(9) On account of financial stringency the Government of Bengal was obliged to make a cut of 20 per cent. in all grants made to the Society.

The Society received the following grants from the above Government :—

For		Rs.	Statement.
Journals .. ..	..	1,600	1
O.P. Fund, No. 1 ..	..	8,400	2
O.P. Fund, No. 2 ..	..	2,400	3
		<u>12,400</u>	

The two usual grants from the Government of Bengal with regard to the Sanskrit Manuscript Fund Account were not received. They are a grant of Rs. 3,600 for the collection, preservation, and cataloguing of Sanskrit Manuscripts, and a grant of Rs. 3,200 for research work in connection with the history of religion, usage, and folk-lore in Bengal.

As some doubt had arisen whether these two grants had been sufficiently correctly styled in the Society's financial statements for the last few years the question has been considered by the Government who soon after the close of the year generously sanctioned their payment, subject to the general reduction of 20 per cent.

The Government of India Grant of Rs. 5,000 for the Arabic and Persian Manuscripts and Cataloguing Fund was received in full and mention has been made of this in Statement No. 5. The Government of India have generously decided not to make a reduction in the grant for the year.

(10) The income derived from advertising during the year amounted to Rs. 9,600.

(11) The temporary investments of funds in Fixed Deposit and Savings Bank are shown in Statements Nos. 23 and 24. Amounts set aside for earmarked expenditure are shown in Statement No. 16.

(12) Statement No. 21 gives an account of the amounts due to and by the Society for membership subscriptions, sales of publications, and contingent charges.

(13) The Government Securities shown in Statement No. 26 are held in safe custody by the Imperial Bank, Park Street Branch. There was a very substantial appreciation of all the Government Securities held at the end of the year amounting to Rs. 67,263, affecting to that extent the book assets of the Society.

(14) The budget estimates for 1932 and the actuals for the year were as follows :—

Estimates.		Receipts.	Expenditure.
		Rs.	Rs.
Ordinary	..	.. 59,000	59,000
Extraordinary	..	.. 850	850
TOTAL		.. 59,850	59,850
Actuals.			
Ordinary	..	.. 55,876	54,828
Extraordinary	..	.. 900	900
TOTAL		.. 56,776	55,728

Of the receipts a sum of Rs. 900, derived from entrance fees and compounding fees, is classed as extraordinary and is not available for expenditure as it has to be transferred to the Permanent Reserve.

A sum of Rs. 5,000 budgeted for the indispensable increase of the Endowment Fund had to be deflected towards expenditure on the publication of the *Journal* and the *Memoirs* during the next year. The Council was reluctantly forced to suspend for the year the intended addition to the Permanent Reserve Fund in accordance with the policy inaugurated only two years ago.

The ordinary income was about Rs. 3,100 less than estimated; this is practically accounted for by diminution in income under the headings membership subscriptions and sales of publications.

On the expenditure side salaries absorbed about Rs. 600, and building repairs about Rs. 450 more than was estimated. On the other hand some savings were effected under various items of expenditure in the budget.

The income from temporary investments of liquid assets amounted to Rs. 1,254, about Rs. 900 less than the year before on account of the smallness of interest rates on deposits.

The ordinary income was about Rs. 1,048 above ordinary expenditure if the suspension of the reserve allocation of Rs. 5,000 be left out of account.

(15) The year's working shows an improvement in the net balance by Rs. 57,629 as compared to that of last year taking into account the appreciation of our investments. This does not represent any real gain to the Society as the investments affected are not saleable in accordance with the Rules and as their rate of interest remains the same.

(16) The budget estimates for probable expenditure have as usual been framed to meet demands under various heads based on as much activity in all departments of the Society's work as can be safely undertaken under present circumstances.

The receipts have been estimated conservatively.

BUDGET ESTIMATE FOR 1933.

Ordinary Receipts.

	1932 Estimate.	1932 Actuals.	1933 Estimate.
	Rs.	Rs.	Rs.
Interest on Investments and Deposits	12,000	{ 10,012	10,000
		{ 1,254	500
Advertising	9,600	9,600	9,600
Annual Grant	1,600	1,600	1,600
Miscellaneous	500	300	500
Members' Subscriptions	11,000	10,572	9,500
Publications, Sales, and Subscriptions	6,000	4,028	4,500
Proportionate Share from Funds ..	9,000	9,000	7,000
Assam Government Allowance for Publications .. ..	..	..	..
Donations .. ..	..	210	..
Rent	9,300	9,300	9,300
TOTAL ..	59,000	55,876	52,500

Ordinary Expenditure.

	Rs.	Rs.	Rs.
Salaries and Allowances	30,800	31,365	31,500
Commission	400	298	300
Stationery	750	382	600
Fan and Light	{ 700	680	700
Telephone .. ..	{ ..	..	..
Taxes	2,300	2,244	2,250
Postage	2,000	1,499	1,750
Freight	100	..	100
Contingencies	850	886	850
Petty Repairs	150	43	100
Insurance	500	500	500
Menials' Clothing	200	210	150
Office Furniture	500	412	400
Artistic Possessions	100	..	100
Building Repairs	2,000	2,445	2,000
Provident Fund Share	660	677	700
Audit Fee	250	250	250
Books, Library	2,500	2,174	2,000
Binding, Library	800	750	750
Journal and Memoirs	6,940	4,245	6,500
Printing, Circulars	1,500	768	1,000
Contribution to I.S.C. .. ..	..	..	..
Miscellaneous (Legal Fees) .. ..	..	..	..
Permanent Reserve	5,000	..	..
Publication Fund .. ..	..	5,000	..
TOTAL ..	59,000	54,828	52,500

Extraordinary Receipts.

	Rs.	Rs.	Rs.
By Fees			
by Admission Fees	500	480	500
by Compounding Fees	300	420	300
by Institutional Membership Registration Fees	50	..	50
TOTAL ..	850	900	850

Extraordinary Expenditure.

	Rs.	Rs.	Rs.
To Permanent Reserve			
by Admission Fees	500	480	500
by Compounding Fees	300	420	300
by Institutional Membership Registration Fees	50	..	50
TOTAL ..	850	900	850

(17) The Society enjoyed during the first part of the year the valuable services of Mr. James Insch as its Honorary Treasurer and after his departure from India welcomed back Mr. K. C. Mahindra in the responsible office.

(18) The next financial year will be one of considerable difficulty to the Society.

The various grants received from the Government of Bengal have been cut down by 20 per cent. and we express our great appreciation to the Government that no greater cut has been made in view of the Government's financial difficulties. The grant from the Government of India was not diminished at all, which calls for our gratitude.

There was again a decrease in the proceeds from sales of books by another Rs. 800. The proceeds fell about Rs. 2,000 below the very reduced estimate for the year.

The very cautious budget estimates of last year produced the desired result that no actual deficit occurred, though the strengthening of the reserve had to be left over.

It is evident that the Society's financial position will not be satisfactory unless the permanent reserve is increased by several lakhs. The Publication Fund should have a permanent capital of at least three lakhs. The Library one of two lakhs. The *Bibliotheca Indica* one of at least one lakh, and there should also be a fund of at least one lakh of rupees to provide for extended free exchange of our *Journal*. These are the main items but they do not exhaust the desiderata.

It is exceedingly strange that this oldest scholarly Institute on the Continent of Asia, which next year will have existed for a period of a century and a half and which has produced such

fruitful work throughout its long career, has never received a great capital donation or legacy to help its work. Let us hope that the fourth half-century of its existence may bring an improvement in this respect.

37. Publications.

(1) *Journal*.—Of the *Journal and Proceedings*, Vols. XXV and XXVI for 1929 and 1930, respectively, three numbers were issued aggregating 448 pages and 5 plates.

Of late years considerable delay has occurred in the publication of the *Journal*, which has gradually accumulated to such an extent as to engage the very serious consideration of the Council. Late in the year a special Sub-Committee was appointed by the Council to expedite the issue of the periodical, to take steps to make good the arrears, and to submit a report on the whole matter, considering causes and remedies. The Sub-Committee, under the active leadership of Dr. S. L. Hora, has made appreciable progress, and has prepared one further number for issue early in January, as well as taken steps to enable the issue of further numbers in rapid succession.

From the preliminary scrutiny of the problem it is already evident that much material has been received and has been accepted for publication in an inadequate state of preparation for the press by the authors, and that better preliminary editorial preparation of the material received for publication is called for—both with regard to the text and to the illustrations. The variety of matter published in the *Journal* is so great that no single scholar is competent to deal with all of it in an expert manner. In this respect the Asiatic Society of Bengal has difficulties to contend with which do not exist for societies whose publications range over a more restricted field or which have the assistance of numerous experts in the various branches of science at their disposal.

A second great difficulty is the financial one. Printing has become more costly of late years, and the Society belongs to that minority of institutions which for many years have not enhanced the prices of their publications. It was found that in order to bring the *Journal* up-to-date the ordinary budgetary grant for publications would fall short by many thousands of rupees, and the Council has therefore resolved to vote a special additional allocation of Rs. 5,000 under the head Publications for the ensuing year in order to permit an increased rate of publication of the *Journal*.

(2) *Memoirs*.—Of the *Memoirs* three numbers were published aggregating 130 pages and 4 plates.

One of the numbers constituted the sixth part of Col. Sewell's series on Geographic and Oceanographic Research in Indian Waters for which a special volume of the *Memoirs*

is reserved. Two or three further numbers will complete the volume which now has progressed to page 423.

(3) *Material in hand*.—An appreciable amount of material is in hand for the *Journal* but it is not quite certain whether there is sufficient reserve material to bring the *Journal* up-to-date in volumes of the usual bulk without new papers coming in.

(4) *Indian Science Congress*.—The *Proceedings* of the 19th Indian Science Congress, consisting of 580 pages and 13 plates, were published during the year.

(5) *Special Publications*.—No special publications were issued during the year.

(6) *Sales*.—The sales of publications were subject to a further drop and fell to about Rs. 800 below the proceeds of the year before. A sum of Rs. 4,028 was realised, being almost Rs. 2,000 below the budget estimate. This is a matter of very anxious concern.

(7) *Expenditure*.—The expenditure on *Journal* and *Memoirs* was about Rs. 4,245 and for the ensuing year the necessity for providing more than double that amount has been foreseen and provided for in the budget.

38. The Baptist Mission Press.

(1) Under the capable superintendence of Mr. P. Knight the Baptist Mission Press continued to act as our chief printers and again gave invaluable assistance and maintained closest co-operation.

39. Agencies.

(1) Our European and Indian Agents remained the same throughout the year.

40. Exchange of Publications.

(1) The present exchange list of the Society for its *Journal* and *Memoirs* contains slightly over 200 entries. No additions were made to it during the year though several applications for inclusion in it were received. For the moment the Society is not in a position, however desirable it would be, to extend its list.

41. Meetings.

(1) The Ordinary Meetings of the Society were held regularly every month, with the exception of January and the recess months of September and October. The time and day of the meetings remained fixed at 5-30 P.M., on the first Monday of the month. The recorded average attendance remained the same as that of the previous year, namely 14 members and

1 visitor. The maximum attendance was in August with 20 members and 2 visitors.

(2) Three meetings of the Medical Section were held during the year.

42. Exhibits.

(1) In the Ordinary Monthly Meetings a number of exhibits were shown and commented upon by the exhibitors. The following may be mentioned :—

Johan van Manen : A set of Tibetan Banners depicting the sixteen sthaviras.

B. S. Guha : Portman and Molesworth's photographs of the Andamanese.

43. Communications.

(1) Apart from papers submitted both for reading and subsequent publication, a number of communications, not intended for subsequent publication, were made from time to time in the Ordinary Monthly Meetings.

Amongst such communications made during the year the following may be mentioned :—

Johan van Manen : The derivation and meaning of the name Kangechen-dzonga ; The Bibliography of Arabic and Persian Manuscripts ; Once more the ' Wild Men ' or ' Abominable Snowmen ' of Tibet ; Some difficult and interesting expressions in the Tao Te King ; A new translation of the Gita Govinda.

M. Mahfuzul Haq : A note on a new manuscript of the Ruba'iyat of 'Umar-i-Khayyam, dated A.H. 826 (A.D. 1423).

Baini Prasad : Preparation of museum Exhibits with particular reference to the newly opened hall of south Asiatic mammals in the New York Museum of Natural History.

Sunder Lal Hora : A few observations on a collection of Fishes made by the Netherlands Karakorum Expedition, 1929-30 ; A marine Air-Breathing Fish, *Andamia heteroptera* (Bleeker).

44. General Lectures.

(1) The following General Lecture was held during the year before a fairly numerous audience of members and invited guests :—

Ph. C. Visser, Consul-General for the Netherlands, Calcutta :
To the unknown Karakorum mountains. March 16th.

45. Philology.

(1) Ten papers were read during the year to be published later. These were :—

Harit Krishna Deb : The Hindu Calendar and the earlier Siddhāntas.

E. N. Ghosh : Studies on Rg-Vedic Deities. XIII-XXI, Indra, Mitra and Varuna, Rtu, Vṛṣākapi, Bṛhaspati, Viṣṇu, Maruts, Vāyu and Vāta, Veṇa.

46. Natural History : Biology.

(1) One paper read in the previous year was published during the year.

(2) Six new papers were read during the year to be published later. These were :—

- M. C. Cherian : South Indian Acarina.
- A. C. Sen : The Genitalia of the Common Indian Cockroach—*Periplaneta americana* Linn.
- S. L. Hora : Buchanan's Ichthyological Manuscript entitled '*Pisium Bengalae Inferioris Delineationes*'.
- S. L. Hora and D. D. Mukerji : Further Notes on Hamilton-Buchanan's *Cyprinus chagunio*.
- B. Sahni and A. R. Rao : On some Jurassic Plants from the Rajmahal Hills.
- V. Narayanaswami : Additional information concerning the provenance of the plants constituting the Malayan collection of Sir George King, Hermann Kunstler, Father Benedetto Scortechini and Leonard Wray, being a supplement to Sir George King's 'Materials for a Flora of the Malayan Peninsula' and Mr. H. N. Ridley's 'Flora of the Malay Peninsula'.

47. Natural History : Physical Sciences.

(1) One paper read last year was published during the year.

(2) One new paper was read during the year to be published later. This was :—

- M. Z. Siddiqi : The Science of Medicine under the Abbasides.

48. Anthropology.

(1) One paper read last year was published during the year.

(2) One new paper was read during the year to be published later. This was :—

- H. C. Das-Gupta : On a type of Sedentary Game, known as *Pretoa*.

49. Medical Section.

(1) *Meetings*.—During the year three meetings of the Medical Section were held, as detailed below :—

- February. Speaker : Lt.-Col. R. Knowles. Subject : The Casualties of the Great War.
- April. Speaker : Dr. U. N. Brahmachari. Subject : Treatment of Kala-Azar with intramuscular injection of Sodium Sulphomethyl Stibanilate.
- July. Speaker : Dr. U. N. Brahmachari. Subject : Further observations on the treatment of Kala-Azar with intramuscular injection of Sodium Sulphomethyl Stibanilate. Also Dr. Phanindra Nath Brahmachari, Dr. Radhakrishna Banerjee and Dr. U. N. Brahmachari. Subjects : (1) The Action of Quinine on a Hemolytic system *in vitro* and its bearing, if any, on the mechanism of Black-Water Fever. (2) The

action of certain Quinoline compounds on Paramœcia. Also Dr. U. P. Basu. Subject: On the problem of Prevention of Diseases of the Heart in India.

The recorded attendance averaged 4 members and 15 visitors.

(2) *Personal*.—To our great regret Colonel R. Knowles, who for many years has been a very active Secretary to the Medical Section, again fell seriously ill during the year and, after a long treatment in hospital, was invalided home. He consequently resigned his seat on the Council as well as the Medical Secretaryship. The Society is in debt to Colonel Knowles for his great energy and devotion to the cause of the medical activities of the Society. He has inspired and led the Medical Section for almost 12 years in succession with short interruptions, and no labour has ever been too much for him in this connection.

(3) *General*.—The multiplicity of medical institutions in Calcutta has been for a long time an obstacle to the numerical success of the meetings organised by the Medical Section. The attendance has, as a rule, been small as the various existing hospitals, colleges, institutes, and societies, all claim attendance for their own lectures and meetings. Our medical Members feel that this problem needs careful consideration.

50. Bibliotheca Indica.

(1) *Works published*.—Actually published were four issues, Nos. 1516, 1517, 1518, and 1519, of an aggregate bulk of 12 fascicle units of 96 or 100 pages and the final Part IV of the Kāshmiri Dictionary, quarto, 316 pages. The details are given in Appendix II to this report.

Of the above issues one constituted a complete work, namely:—

1. *Parīṣṭaparvan*, Sanskrit (Second, revised Edition).

(2) *Indian works continued*.—In the Indian Series work was continued on five works as follows:—

1. *Ātmatattvavivēka*, Sanskrit.
2. *Saundarānanda Kāvya*, Sanskrit. Re-issue.
3. *Dowazangmo*, Tibetan.
4. *Vaikhāṇasa-śrauta-sūtra*, Sanskrit.
5. *Manusmṛti*, with the commentary of Medhātithi, Sanskrit.

(3) *Islamic works continued*.—In the Islamic Series work was continued on four works, namely:—

1. *ʿAmal-i-Ṣālih*, Persian.
2. *Ṭabaqāt-i-Akbarī*, Persian.
3. *Ṭabaqāt-i-Akbarī*, English. Translation.
4. *Kashafu'l-Hujub*, Part II, Index, Persian.

(4) *General Progress*.—The output for the year was very substantial. The great event of the year in the *Bibliotheca Indica* was the completion of Sir George Grierson's great Kāshmirī Dictionary, the first beginnings of which date back as far as 1899. The venerable author has for over 30 years devoted all his leisure to the completion of this great work in the midst of his pressing engagements on the linguistic survey of India. The work is now complete in four parts comprising over 1,270 quarto pages. The expense of the work has been very considerable, amounting to over Rs. 25,000, and of the labour of the author nothing adequate can be said in praise. It is a matter of happiest circumstance that Sir George Grierson, still full of vigour, has lived to see the termination of his great work and that the Society is able to congratulate him on the magnificent completion of this gigantic labour of love.

During the year we lost through death two aged Editors actively engaged on works to be issued in the series:—Prof. Caland, editing the *Vaikhānasa-śrauta-sūtra* and Mr B. De, editing and translating the *Ṭabaqāt-i-Akbarī*. As to the first mentioned work Prof. J. Gonda happily volunteered to continue and complete the work in accordance with the wishes of the late scholar. The continuation of Mr De's work has to be arranged. The issue of the second volume of the translation offers no difficulty as the work was practically ready at the time of his regretted death. The issue of the third and final volumes of both edition and translation needs special arrangements. A substantial portion of both is already in type but has not been seen by the late Editor and Translator.

Of the various works in progress, nearly 1,900 pages of matter, not yet issued, have been printed off whilst a further portion is in galley proof, some 150 galleys.

(5) *New Works*.—During the year no new works were sanctioned.

(6) *Prospects*.—Under this heading we repeat the paragraph in the previous report which applies without change:—

'For reasons to be detailed in the following paragraph the prospects for the immediate future are none too bright. Several works are in need of speedy continuation and several works in need of re-publication. Several applications were made during the year for acceptance of new works in the series. Some of them are valuable and from the point of view of scholarship it would be most desirable to undertake publication of them as soon as possible. The condition of our finances militates against such action.'

(7) *Financial*.—As remarked last year, the financial position of the *Bibliotheca Indica* series is bad. At present the Society has advanced Rs. 8,500 to the two Oriental Publication Funds by which the series is financed which sum represents the extent of their deficits. As already noted, the

Government grants in support of the series have been curtailed by 20 per cent. Further there has been a great falling off in sales during the last two years. No doubt all these difficulties are temporary, but we cannot calculate the length of the period of depression. The work to be performed is enormous. A great many new works are being offered for publication which we cannot take up. A great number of old works need new editions. Other works again need completion. Our scope, even after more than a century of Sanskrit studies and the much longer period of Arabic and Persian studies, remains unbounded, whilst the exploration of the Tibetan and vernacular fields has scarcely been begun. However much Oriental publishing agencies have multiplied of late years, yet the mass of Oriental literature to be converted into accessible print remains enormous. The only truly satisfactory solution of the difficulty would be, as remarked elsewhere in the report, the establishment of an adequate reserve fund for the *Bibliotheca Indica* of at least one lakh to begin with, the income of which should be devoted in the first instance to the re-issue of works out of print. The *Bibliotheca Indica* does not pay, and as its present low prices are fixed cannot pay its way. We are not yet in a position where the issue of critically edited and technical Oriental texts can be made a matter of profit if sold at moderate prices. We are working for posterity in this matter but not for ourselves. But without agencies undertaking the unremunerative work in sheer service of learning for many years to come, no ultimate stage can be arrived at where knowledge and interest will be so general that such publications may become self-supporting.

51. Catalogue of Sanskrit Manuscripts.

(1) *Catalogue*.—During the ensuing year the question has to be considered of the continuation of the publication of the great descriptive catalogue of the Society's Sanskrit manuscripts, begun and prepared by MM. Haraprasad Shastri. During the year under review no grants in aid of the catalogue of the collection of Sanskrit manuscripts were received from the Government of Bengal, but these grants have been sanctioned early in the current year. The continuation of these grants has been considered by the Government and our future policy will be largely dictated by the final decision to be given. There is work for several years, and involving great sums, still to be performed.

The revised manuscript for volume 8 of the catalogue on Philosophy, volume 9 on Tantra, volume 10 on Astronomy and Astrology, and volume 12 to contain a description of the vernacular manuscripts, is press ready. The copy for volume 11 on Jaina manuscripts, volume 13 of miscellaneous contents,

and for volume 14, the Addenda and supplementary matter, has still to be given a final revision though the crude material is available. After the close of the series the question of drawing up an amalgamated index and a general introduction for the whole series has to be considered. A collection of about 500 manuscripts on Medical Science was sorted out and separated from the collections to furnish material for a 15th volume. The notices have already been prepared but they still need arrangement and numbering.

(2) The resident Pandit continued his work on the description of a collection of Bardic manuscripts, of which the Society possesses about 600. He prepared short notices for about 350 items and is continuing the work.

(3) The staff of the Department remained unchanged.

52. Arabic and Persian Manuscripts, Search and Catalogue.

The work in this department was steadily pursued.

(1) *Catalogue*.—Work on the first volume of the catalogue of Arabic manuscripts, partly printed, partly in type, and partly in manuscript, has to be taken up again as soon as possible after having been in suspense since the beginning of 1930. The small credit balance at the end of the year, of about Rs. 1,330, has to increase substantially before further work can be taken in hand.

(2) *Binding*.—The binding and repairing of previously and newly acquired MSS. was continued and 60 MS. volumes were bound during the year, making a total of 1,950 MSS. bound and repaired since the end of 1924. As already stated before, the binding of the manuscripts in this department has now been practically completed and henceforth the number of MSS. to be bound annually will in all probability be reduced to a few dozens.

(3) *Acquisitions*.—During the year three manuscripts were acquired by purchase. Besides, photographic reproductions of three very valuable manuscripts in the Vienna State Library, the Bodleian Library in Oxford, and the British Museum Library in London, were acquired for editorial purposes. Such photographic copies of rare manuscripts are exceedingly valuable and desirable acquisitions, but expensive, and their purchase is a luxury to be indulged in but rarely. A total amount of about Rs. 540 was spent on these new acquisitions.

(4) *Reference Works*.—During the year a special endeavour was made to complete the collection of bibliographical reference works describing Arabic and Persian MSS. throughout the world. The department was fortunate in obtaining a substantial number of rare items hitherto lacking, and the collection in the possession of the Society may be now counted as

the most complete one existing in India, numbering over 165 items, large and small.

(5) *Arrangement*.—The re-arrangement of the Persian manuscripts according to the serial numbers in Mr. Ivanow's catalogues was continued and completed during the year and now all the manuscripts described in the four volumes are placed on the shelves in a sequence corresponding to the serial numbers of the catalogue, which greatly facilitates their handling.

(6) *Staff*.—The staff of the department remained unchanged.

53. Numismatics.

One Numismatic Supplement No. 43 (for 1930) was published (60 pages and 5 plates) containing 9 articles. No further material was received for publication during the year. An endeavour to procure indexes for the third series of the Supplement to cover the articles between 200 and 300 met as yet with no success, and the lack of contact was felt between the Editor of the Supplement and the office of the Society on account of the great distance between the two.

54. Conclusion.

For ten years now the annual report has been written on a methodical plan which has been modified and extended in detail year by year as circumstances demanded, until a skeleton has been evolved which practically covers all the facts and allows for a well-balanced presentation of all elements and items constituting the year's work. Stress has been laid on a relation of facts, supplemented by a modicum of reflection and comment. The main aspects of our problems have been illustrated from various angles of view in different reports and the burden of our considerations has been repeated in different wording in the successive issues of the annual review. It may be, therefore, that in future years the element of comment may be curtailed and reserved to whatever new considerations may arise from time to time. The decennial description of the Society's work as embodied in the last ten years' reports gives clear and full expression to almost every desideratum and consideration to which experience has drawn attention.

55. Summary.

Though the year 1932 was one of sustained activity in all the departments of the Society it continued to be at the same time strongly and adversely influenced by the financial difficulties prevalent throughout the world. The Society's income was reduced under various headings, the number of new

accessions in membership was only slightly above that of the year before, and the number of resignations very great. The number of Members who let their membership lapse through non-payment of subscriptions was exceptionally large. Nevertheless the total number of Ordinary Members on the roll by the end of the year, though representing a decrease of 67, still remain over 450, a total almost equal to that of the year 1925. The number of Life Members increased to 54. The Council and its Committees were active. The staff worked well but needs strengthening and improvement. The hand of death made us lose our oldest member as well as several other valued adherents. No new Institutional Members were enrolled. The roll of Ordinary Fellows decreased to 45, that of Honorary Fellows to 28. Some improvement was made in furniture and fittings, and thorough repairs to the building were undertaken. The correspondence of the year remained very exacting. The many official and ceremonial obligations of the Society were as much as possible attended to and international intellectual relations were fully maintained. The number of distinguished visitors to the Society's Rooms during the year was satisfactory and varied. The various awards of the Society for scholarly merit were administered with care. No new rules were framed. Two valuable artistic objects were received as presentations. The Library added 216 volumes to its collections and more than 660 volumes were bound. The permanent Library Endowment Fund received no further gifts and its invested corpus of Rs. 12,000, face value, remained the same. The financial position of the Society was far from satisfactory, and investments of only about Rs. 1,200, face value, were added to the Permanent Reserve Fund. The year's working produced no actual deficit but a proposed increase of the permanent fund had to be deferred. The Government of Bengal made a reduction in its various grants by 20%. Proceeds from book sales decreased by about Rs. 800. The chief financial problem before the Society remains the speedy and considerable strengthening of the Permanent Reserve Fund, by several lakhs of rupees. The publication of the *Journal* and *Memoirs* during the year was seriously delayed but steps were taken to make good the arrears in the near future. The supply of new materials for publication remained considerable. The Monthly Meetings continued to be of interest and were well attended. A number of interesting exhibits were shown during the year. One General Lecture was given. The number of Philological papers presented during the year amounted to ten and six papers on Biology were contributed. One paper was received on Physical Science. There was one Anthropological paper. In all 18 papers were received. The Medical Section held three meetings. The issues in the *Bibliotheca Indica* were not only numerous, but bulky and important. Amongst them was one complete

work, and together they were of a bulk of 19 units of 96 or 100 octavo pages. No further cataloguing of manuscripts in the Arabic and Persian Section and of the Sanskrit manuscripts was undertaken during the year. The binding of the collection of Persian and Arabic manuscripts was continued and 60 further volumes were bound making a total of 1,950 volumes bound during the last nine years. Three new volumes of Arabic and Persian manuscripts were added to the Society's Library as well as 3 photographic copies of such manuscripts.

The year under review was one of activity and satisfactory success notwithstanding adverse financial and economic conditions. All Members and Officers worked harmoniously together with undiminished enthusiasm and though the financial aspect is not bright the scholarly and social prestige of the Society was fully maintained.

Though the Report this year had necessarily to be written in a minor key in order not to underrate the Society's difficulties, there is no reason for despondency or dissatisfaction. Our activities not only continued without interruption or abatement, but the vitality of the Association remained unimpaired. It is, however, necessary to depart, to some extent, from that unworldly standpoint which in the past has invariably led to an omission of any stress being laid on the Society's financial difficulties, desiderata, and hopes. It has been rightly said that if needs are not expressed they will never be met. It has therefore been judged advisable to stress clearly the financial needs of the Society and to point out that an Institution of the magnitude, the record, and the reputation, of the Asiatic Society of Bengal, not to speak of its ambitions and hopes, should have an adequate capital as a permanent endowment so that its financially unprofitable labours may continue and even increase, independently from the vicissitudes of a fluctuating and, at present, alas, too limited income.

[APPENDIX I.]

Membership Statistics.

(As calculated for December 31st, for 30 years.)

YEAR.	ORDINARY							EXTRA-ORDINARY.				Grand Total Membership.	FELLOWS		
	PAYING.				NON-PAYING.			Total Ordinary Members.	Centenary Honorary.	Associate.	Institutional.		Total.	Honorary.	Ordinary.
	Resident.	Non-Resident.	Foreign	Total.	Absent.	Life.	Total.								
1903	127	126	15	268	46	21	67	335	4	13	..	17	352	24	..
1904	132	130	14	276	46	21	67	343	4	13	..	17	360	30	..
1905	144	133	12	288	48	20	68	356	4	13	..	17	373	29	..
1906	173	147	15	335	52	20	72	407	4	12	..	16	423	30	..
1907	174	175	20	369	31	20	51	420	4	12	..	16	436	28	..
1908	181	193	17	391	38	19	57	448	4	13	..	17	465	30	..
1909	183	217	13	413	40	20	60	473	4	14	..	18	491	28	..
1910	209	217	16	442	43	23	66	508	4	14	..	18	526	27	17
1911	200	225	19	444	53	22	75	519	3	14	..	17	536	28	19
1912	203	229	19	451	43	23	66	517	3	13	..	16	533	27	24
1913	200	211	19	430	46	23	69	499	3	14	..	17	516	27	28
1914	191	187	19	397	50	26	76	473	3	14	..	17	490	24	27
1915	171	188	21	380	40	25	65	445	3	15	..	18	463	29	31
1916	145	159	18	322	60	25	85	407	3	15	..	18	425	26	33
1917	150	144	15	309	45	24	69	378	2	12	..	14	392	22	35
1918	153	145	17	315	43	24	67	382	2	10	..	12	394	22	39
1919	141	128	15	284	64	25	89	373	2	11	..	13	386	18	36
1920	161	134	15	310	32	26	58	368	2	11	..	13	381	28	38
1921	160	132	16	308	26	26	51	359	2	12	..	14	373	28	40
1922	160	141	16	317	26	26	52	369	2	13	..	15	384	30	39
1923	147	120	13	280	30	27	57	337	2	11	..	13	350	28	37
1924	209	134	12	355	29	28	57	412	2	12	..	14	426	27	37
1925	263	137	12	412	23	27	50	462	2	12	..	14	476	26	34
1926	319	162	20	501	23	28	51	552	2	12	..	14	566	25	34
1927	328	167	18	513	28	33	61	574	2	13	..	15	589	28	38
1928	344	167	23	534	42	46	88	622	1	12	..	13	635	28	40
1929	331	181	21	533	36	49	85	618	1	10	2	13	631	27	43
1930	291	194	37	522	22	52	74	596	1	8	2	11	607	29	47
1931	228	184	29	441	26	52	78	519	1	8	5	14	533	29	46
1932	222	126	23	371	27	54	81	452	1	7	5	13	465	28	45

[APPENDIX II.]

List of Publications issued by the Asiatic Society of Bengal during 1932.

(a) Bibliotheca Indica (New Series) :

	Price.
	Rs. A. P.
No. 1516 : Manusmṛti, Vol. I (6 units) ..	6 0 0
No. 1517 : 'Amal-i-Šālih, Vol. III, Fasc. 3 (1 unit) ..	1 0 0
No. 1518 : Kāshmirī Dictionary, Part IV (Special Price) ..	30 0 0
No. 1519 : Parīṣiṣṭāparvan (2nd Ed.) (5 units) ..	5 0 0

(b) Journal and Proceedings (New Series) :

Vol. XXV : No. 3 (13 units) ..	4 14 0
Vol. XXVI : No. 2 (9 units) ..	3 6 0
Vol. XXVI : No. 3 (12 units) ..	4 8 0

Title page and Index for Vol. XXV. (Free to Members and Subscribers on application.)

(c) Memoirs :

Vol. IX, No. 6 : Temperature and Salinity of the Deeper-waters of the Bay of Bengal and Andaman Sea -(5 units) ..	2 13 0
Vol. XI, No. 4 : String Figures from Gujarat and Kathiawar (2 units) ..	1 2 0
Vol. XI, No. 5 : Algal Flora of the Chilka Lake (7 units) ..	3 15 0

(d) Miscellaneous :

Proceedings, Nineteenth Indian Science Congress ..	18 12 0
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Abstract Statement
of
Receipts and Disbursements
of the
Asiatic Society of Bengal
for
the Year 1932

STATEMENT No. 1.

1932. *

Asiatic Society

Dr.

TO ESTABLISHMENT.

			Rs.	As.	P.	Rs.	As.	P.
Salaries and Allowances	..	..	31,365	6	3			
Commission	..	..	298	7	0			
						31,663	13	3

TO GENERAL EXPENDITURE.

Stationery	..	..	..	382	1	0		
Fan and Light	..	..	..	413	14	0		
Telephone	..	..	..	266	7	0		
Taxes	..	..	..	2,244	7	0		
Postage	..	..	..	1,499	6	6		
Contingencies	..	..	..	886	6	9		
Printing Circulars, etc.	..	..	..	768	10	6		
Audit Fee	..	..	..	250	0	0		
Petty Repairs	..	..	..	42	15	0		
Insurance	..	..	..	500	0	0		
Menials' Clothing	..	..	..	209	10	6		
Furniture	..	..	..	412	0	0		
Building Repairs	..	..	..	445	3	3		
							8,321	1 6

TO LIBRARY AND COLLECTIONS.

Books	..	..	..	2,173	15	0		
Binding	..	..	..	750	2	0		
							2,924	1 0

TO PUBLICATIONS.

Journal and Proceedings and Memoirs	..	..	..	4,244	13	3		
							4,244	13 3

TO CONTRIBUTIONS TO FUNDS.

Provident Fund Contribution for 1932	..	..	..	677	5	0		
Building Repair Fund Account	..	..	..	2,000	0	0		
Publication Fund Account	..	..	..	5,000	0	0		
							7,677	5 0

TO SUNDRY ADJUSTMENTS.

Bad Debts written-off	..	..	..		2,263	6	6	
Balance as per Balance Sheet	..	..	..		2,20,619	0	4	
TOTAL	..	..	..		2,77,713	8	10	

STATEMENT No. 1.

of Bengal.

1932.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account				1,57,960	10	11

BY CASH RECEIPTS

Advertising	9,600	0	0			
Interest on Investments	10,013	6	0			
Interest on Fixed Deposit	1,253	7	0			
Miscellaneous	300	4	3			
Government Allowance	1,600	0	0			
Donations	210	0	0			
Rent	9,300	0	0			
				32,277	1	3

BY PERSONAL ACCOUNT.

Members' Subscriptions	12,085	10	0			
Compounding Subscriptions	420	0	0			
Admission Fees	480	0	0			
Miscellaneous	212	13	8			
				13,198	7	8

BY TRANSFER FROM FUNDS.

Proportionate Share in General Expenditure	9,000	0	0			
Publication Fund for Publications	4,436	9	0			
				13,436	9	0

BY APPRECIATION OF GOVT. SECURITIES.

Appreciation of Govt. Securities revalued on 31-12-32				60,840	12	0
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TOTAL .. 2,77,713 8 10

STATEMENT No. 2.**1932.*****Oriental Publication***

From a monthly grant made by the Government of Bengal for the publi-
(Rs. 500), and for the publication of Sanskrit

(*Less 20% from the*

Dr.

	Rs.	As.	P.
To Balance from last Account ..	5,749	3	10

TO CASH EXPENDITURE.

Printing ..	5,159	11	0
To Proportionate Share in General Ex- penditure ..	3,000	0	0
TOTAL ..	13,908	14	10

STATEMENT No. 3.**1932.*****Oriental Publication***

From a monthly grant made by the Government of Bengal of
Historical

(*Less 20% from the*

Dr.

TO CASH EXPENDITURE.

	Rs.	As.	P.	Rs.	As.	P.
Printing ..	5,589	7	10			
Editing ..	280	0	0			
				5,869	7	10
TOTAL ..				5,869	7	10

STATEMENT No. 2.

Fund, No. 1, in Account with A.S.B.

1932.

Publication of Oriental Works and Works of Instruction in Eastern Languages
Works hitherto unpublished (Rs. 250).

1st of April, 1932.)

Cr.

BY CASH RECEIPTS.

					Rs.	As.	P.
Annual Grant	..	..	..	..	8,400	0	0
By Balance as per Balance Sheet			..	..	5,508	14	10
TOTAL					13,908	14	10

STATEMENT No. 3.

Fund, No. 2, in Account with A.S.B.

1932.

Rs. 250 for the publication of Arabic and Persian Works of
Interest.

1st of April, 1932.)

Cr.

					Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account			..	..				383	14	3
BY CASH RECEIPTS.										
Annual Grant for 1932-33	..	..	..	..	2,400	0	0			
By Balance as per Balance Sheet			..	..	3,085	9	7			
TOTAL					5,869	7	10			

STATEMENT No. 4.

Account, in Account with A.S.B.

1932.

for the publication of the Catalogue of Sanskrit Manuscripts acquired same Government for Research Work.

(1st of April, 1932.)

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	13,869	4	3

TOTAL	13,869	4	3
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STATEMENT No. 5.

Fund Account, in Account with A.S.B.

1932.

the cataloguing and binding of Arabic and Persian Manuscripts, acquired and for the preparation of notices of Arabic and Persian various Libraries in India.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	1,248	10	9

BY CASH RECEIPTS.

Government Allowance for 1932-33	5,000	0	0
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TOTAL	6,248	10	9
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STATEMENT No. 6.

1932.

Barclay Memorial

From a sum of Rs. 500 odd given in 1896 by the Surgeon
encouragement of Medical

Dr.

TO CASH EXPENDITURE.

		Rs.	As.	P.	Rs.	As.	P.
Cost of a Medal			17	14	0
To Balance as per Balance Sheet—							
Rs. 400, 3½% G.P.N., 1854-55	}	..					
" 100, " " 1900-01							
" 100, " " 1865							
" 100, " " 1854-55							
Accumulated Cash Balance		58	6	2		
			<hr/>				
					573	12	2
TOTAL		..			591	10	2

STATEMENT No. 7.

1932.

Servants' Pension Fund

Founded in 1876 as the Piddington Pension Fund

Dr.

		Rs.	As.	P.		Rs.	As.	P.
To Balance as per Balance Sheet—								
Rs. 2,000, 3½% G.P. Notes	}	..	1,840	10	0			
„ 500, 3½% G P. Notes								
Accumulated Cash Balance		..	187	11	10			
						2,028	5	10
TOTAL		..				2,028	5	10

STATEMENT No. 6.

Fund Account, in Account with A.S.B.

1932.

General, I.M.S., for the foundation of a medal for the
and Biological Science.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	419	9	4

BY CASH RECEIPTS

Interest realized for the year ..	..	..	23	11	10
By Appreciation, Investments revalued on 31-12-32 ..	..	..	148	5	0
TOTAL ..	..	..	591	10	2

STATEMENT No. 7.

Account, in Account with A S.B.

1932.

with Rs. 500 odd from the Piddington Fund.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	1,411	3	8

BY CASH RECEIPTS.

Interest realized for the year ..	..	..	87	7	2
By Appreciation, Investments revalued on 31-12-32 ..	..	..	529	11	0
TOTAL ..	..	..	2,028	5	10

STATEMENT No. 8.

1932.

Annandale Memorial Fund

From donations by subscription,

Dr.

TO CASH EXPENDITURE.

		Rs.	As.	P.	Rs.	As.	P.
Contingencies .. ..	..	..			1	8	0
To Balance as per Balance Sheet—							
Rs. 3,000, 3½% G.P. Notes }	..	2,945	0	0			
„ 1,000, 3½% G.P. Notes }	..						
Accumulated Cash Balance ..	..	111	3	7			
					3,056	3	7
TOTAL ..					3,057	11	7

STATEMENT No. 9.

1932.

Permanent Library Endowment

From gifts received

Dr.

		Rs.	As.	P.		Rs.	As.	P.
To Balance as per Balance Sheet—								
Rs. 11,000, 3½% G.P. Notes }	..	8,835	0	0				
.. 1,000, 3½% G.P. Notes }	..	701	0	0				
Accumulated Cash Balance ..	..					9,536	0	0

STATEMENT No. 8.

Account, in Account with A.S.B.

1932.

started in 1926.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	2,070	11	1
BY CASH RECEIPTS.						
Interest realized for the year	139	8	6
By Appreciation, Investments revalued on 31-12-32	847	8	0
TOTAL	3,057	11	7

STATEMENT No. 9.

Fund Account, in Account with A.S.B.

1932.

started in 1926.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	6,575	5	6
BY CASH RECEIPTS.						
Interest realized for the year	418	2	6
By Appreciation, Investments revalued on 31-12-32	2,542	8	0
TOTAL	9,536	0	0

STATEMENT No. 10.

1932.

Sir William Jones Memorial

From a sum gifted for the purpose in

Dr.

	Rs.	As.	P.	Rs.	As.	P.
To Balance as per Balance Sheet—						
Rs. 3,000, 3½% G.P. Notes ..	2,208	12	0			
Accumulated Cash Balance ..	216	10	0			
				2,425	6	0
TOTAL ..				2,425	6	0

STATEMENT No. 11.

1932.

Joy Gobind Law Memorial

From a donation for the purpose

Dr.

	Rs.	As.	P.	Rs.	As.	P.
To Balance as per Balance Sheet—						
Rs. 3,000, 3½% G.P. Notes ..	2,208	12	0			
Less Cash Advance ..	4	8	0			
				2,204	4	0
TOTAL ..				2,204	4	0

STATEMENT No. 10.

Fund Account, in Account with A.S.B.

1932.

1926, by Dr. U. N. Brahmachari.

Cr.			
		Rs. As. P.	Rs. As. P.
By Balance from last Account	1,685 4 0
BY CASH RECEIPTS.			
Interest realized for the year	104 8 0
By Appreciation, Investments revalued on 31-12-32	635 10 0
TOTAL	2,425 6 0

STATEMENT No. 11.

Fund Account, in Account with A.S.B.

1932.

by Dr. Satya Churn Law, 1929.

Cr.			
		Rs. As. P.	Rs. As. P.
By Balance from last Account	1,464 6 0
BY CASH RECEIPTS.			
Interest realized during the year	104 4 0
By Appreciation, Investments revalued on 31-12-32	635 10 0
TOTAL	2,204 4 0

STATEMENT No. 12.**1932.*****Akbarnama Reprint***

From a sum set apart in 1923 for

Dr.**TO CASH EXPENDITURE.**

					Rs.	As.	P.
Printing .. .. .	..	..	..	..	7,764	10	8
TOTAL	..				7,764	10	8

STATEMENT No. 13.**1932.*****Building Fund***From a sum of Rs. 40,000 given by the Government of India
proceeds of a portion**Dr.****TO CASH EXPENDITURE.**

					Rs.	As.	P.
Building Repairs .. .. .	..	..	..	..	4,802	11	0
To Balance as per Balance Sheet	..	..			6,321	9	6
TOTAL	..				11,124	4	6

STATEMENT No. 14.**1932.*****Calcutta Science Congress Prize*****Dr.**

					Rs.	As.	P.	Rs.	As.	P.
To Balance as per Balance Sheet—										
Rs. 3,000, 3½% G.P. Notes ..	..				2,208	12	0			
Accumulated Cash Balance ..	..				359	7	7			
								2,568	3	7
TOTAL	..							2,568	3	7

STATEMENT No. 15.

1932.

Dr. Brühl Memorial

From a sum gifted for the purpose by

Dr.

	Rs.	As	P.		Rs.	As	P.
To Balance as per Balance Sheet—							
Rs. 1,000, $3\frac{1}{2}\%$ G.P. Notes ..	..		736 4 0				
Accumulated Cash Balance ..	..		<u>312 4 0</u>		1,048	8	0
TOTAL	..				1,048	8	0

STATEMENT No. 16.

1932.

Building Repair

Dr.

TO CASH EXPENDITURE.

				Rs.	As.	P.
Building Repairs	..	..	..	4,000	0	0
To Balance as per Balance Sheet	..	..	..	2,000	0	0
		TOTAL	..	6,000	0	0

STATEMENT No. 17.

1932.

International Catalogue of Scien-

Dr.

			Rs.	As.	P.
To Balance as per Balance Sheet	..	..	4,374	7	8
			<hr/>		
TOTAL	..	..	4,374	7	8

STATEMENT No. 15.

Fund Account, in Account with A.S.B.

1932.

the Bruhl Farewell Committee, 1929.

Cr.

	Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account		801	14	0
BY CASH RECEIPTS.						
Interest realized for the year		34	12	0
By Appreciation, Investments revalued on 31-12-32	211	14	0
TOTAL				1,048	8	0

STATEMENT No. 16.

Fund Account, in Account with A.S.B.

1932.

Cr.

	Rs.	As.	P.
By Balance from last Account	4,000	0 0
By Transfer from the A.S.B.	2,000	0 0
TOTAL	6,000	0 0

STATEMENT No. 17.

tific Literature, in Account with A.S.B.

1932.

Cr.

	Rs.	As.	P.
By Balance from last Account	4,374	7 8
TOTAL	4,374	7 8

STATEMENT No. 18.

1932. *Current Deposit Account, Chartered Bank of*
From a sum set aside to pay for the

Dr.

				Rs.	As.	P
To Balance from last Account ..	..	..	3,531	4	6	
To Exchange difference, etc. ..	..	..	45	4	6	
		TOTAL ..	3,576	9	0	

STATEMENT No. 19.

1932. *Provident Fund*
From contributions by the

Dr.

	Rs.	As.	P.		Rs.	As.	P.
To Balance as per Balance Sheet—							
Rs. 5,000, $4\frac{1}{2}\%$ G.P. Notes	5,050	0	0			
Accumulated Cash Balance	..	5,409	3	1			
		<u> </u>	<u> </u>		10,459	3	1
TOTAL	..				10,459	3	1

STATEMENT No. 20.

1932. *Advances*

Dr.

To Balance from last Account	Rs. 760	As. 0	P. 0
To CASH EXPENDITURE.			
Advances	100	0	0
TOTAL ..	860	0	0

STATEMENT No. 18.

India, Australia and China, London.

1932.

printing of the Kashmiri Dictionary.

Cr.

BY CASH RECEIPTS.

				Rs.	As.	P.
Printing Charges	..	..	..	3,142	8	0
By Balance as per Balance Sheet	..	..	..	434	1	0
TOTAL	..	..	..	3,576	9	0

STATEMENT No. 19.

Account, in Account with A.S.B.

1932.

Society and its Staff.

Cr.

				Rs.	As.	P.	Rs.	As.	P.
By Balance from last Account	..	..	..				8,254	11	0
BY CASH RECEIPTS.									
Staff Contribution for the year	..	..	..	677	5	0			
Society's Contribution for the year	..	..	..	677	5	0			
Interest on Investments realized during the year	..	..	..	262	9	0			
							1,617	3	0
By Interest realized for 1931, from Imperial Bank	..	..	..				62	5	1
By Appreciation, Investment revalued on 31-12-32	..	..	..				525	0	0
TOTAL	..	..	..				10,459	3	1

STATEMENT No. 20.

Account, in Account with A.S.B.

1932.

Cr.

BY CASH RECEIPTS.

				Rs.	As.	P.
Advances Returned	..	..	..	290	0	0
By Balance as per Balance Sheet	..	..	..	570	0	0
TOTAL	..	..	..	860	0	0

STATEMENT No. 21.*1932.**Personal*

Dr.

	Rs.	As.	P.	Rs.	As.	P.
To Balance from last Account				4,789	6	9
To Advances				1,786	14	3
To Asiatic Society's Subscriptions, etc. ..	13,198	7	8			
To Subscriptions to Journal and Proceedings and from Book Sales, etc., from Publica- tion Fund	4,436	9	0			
				<hr/>		
				17,635	0	8

TOTAL .. 24,211 5 8

STATEMENT No. 22.*1932.**Publication Fund**From sale proceeds*

Dr.

	Rs.	As.	P.	Rs.	As.	P.
To Proportionate Share in General Ex- penditure				1,500	0	0
To Publications of the A.S.B.	4,436	9	0			
To Books returned, etc.	56	3	0			
				<hr/>		
To Balance as per Balance Sheet				4,492	12	0
				<hr/>		
				7,181	6	0

TOTAL .. 13,174 2 0

STATEMENT No. 21.

Account.

1932.

		Cr.			Rs. As. P.			Rs. As. P.		
By Cash Receipts during the year		..	..	..	..	..	..	17,798	4	8
By Bad Debts written-off, A.S.B.		..	..	..	2,263	6	6			
By Books returned, etc.		..	..	..	56	3	0			
								2,319	9	6
By Outstandings.	Amount due to the Society.	Amount due by the Society.								
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.						
Members	3,707		628	11	0					
Subscribers	72		24	0	0					
Bill Collector's Deposit			300	0	0					
Miscellaneous	1,826	8	9	559	6	3				
	5,605	8	9	1,512	1	3				
							By Balance	4,093	7	6
							TOTAL	24,211	5	8

STATEMENT No. 22.

Account, in Account with A.S.B.
of publications.

1932.

		Cr.			Rs. As. P.			Rs. As. P.		
By Balance from last Account		3,535	10	9
BY CASH RECEIPTS.										
Cash Sales of Publications		156	9	9
BY PERSONAL ACCOUNT.										
Credit Sales of Publications, etc.		3,644	9	0			
Subscriptions to Journal and Proceedings		672	0	0			
Institutional Members' Subscriptions		120	0	0			
								4,436	9	0
BY TRANSFER FROM FUNDS.										
A.S.B. for publications		5,000	0	0			
By exchange difference, etc.		45	4	6			
								5,045	4	6
							TOTAL	13,174	2	0

STATEMENT No. 23.**1932.****(1) Investment Account**

Dr.				
		Rs.	As.	P.
To Balance from last Account ..	..	..	..	..
To Deposits of Contributions during the year	..	1,714	3	0
To Deposits of Advances, returned	..	290	0	0
To Interest realized for the year 1931	..	62	5	1
		<hr/>		
		2,066	8	1
TOTAL	..	4,939	3	1

STATEMENT No. 24.**1932.****(2) Investment Account**

Dr.				
		Rs.	As.	P.
To Balance from last Account ..	..	6,025	14	3
TO CASH EXPENDITURE.				
Fixed Deposits ..	..	38,206	0	9
TOTAL	..	44,231	15	0

STATEMENT No. 25.**1932.****(3) Investment Account**

Dr.				
		Rs.	As.	P.
To Balance from last Account ..	..	24,562	8	0
TOTAL	..	24,562	8	0

STATEMENT No. 23.

(Savings Bank Deposits, Imperial Bank of India).

1932.

Cr.

BY CASH RECEIPTS.

	Rs.	As.	P.	Rs.	As.	P.
Withdrawal of Deposits for staff Advance ..				100	0	0
By Balance as per Balance Sheet ..				4,839	3	1
TOTAL ..				4,939	3	1

STATEMENT No. 24.

(Fixed Deposit with Central Bank of India).

1932.

Cr.

BY CASH RECEIPTS.

	Rs.	As.	P.
Withdrawal of Deposits	21,081	6	3
By Balance as per Balance Sheet ..	23,150	8	9
TOTAL ..	44,231	15	0

STATEMENT No. 25.

(Government of India Treasury Bills).

1932.

Cr.

BY CASH RECEIPTS.

	Rs.	As.	P.
Treasury Bills realized on maturity ..	24,562	8	0
TOTAL ..	24,562	8	0

STATEMENT No. 26.

1932.

(4) Investment

Dr.

	Rs.	As.	P.
To Balance from last Account	1,70,230	10	0
To Appreciation in value of Investments revalued on 31-12-32	67,552	8	0
TOTAL	2,37,783	2	0

Face Value Rs.	FUNDS		Rate of Rs. %	31st December, 1932, Valuation	31st December, 1931, Valuation	Appreciation on 31st December, 1932			
				Rs.	A. P.	Rs. A. P. Rs. A. P.			
ASIATIC SOCIETY OF BENGAL									
PERMANENT RESERVE.									
16,700	3½%	G. Loan No 155119, 1842-43	73 10/-	1,92,316	10 0	1,29,000	7 0	52,650	8 0
1,00,000	3½%	G. Loan No. 216811, 1854-55	73 10/-						
53,700	3½%	G. Loan No 216812, 1854-55	73 10/-						
5,000	3½%	G. Loan No 623544, 1879	73 10/-						
1,000	3½%	G. Loan No. 629548, 1879	73 10/-						
44,300	3½%	G. Loan No 337128, 1865	73 10/-						
25,000	3½%	G. Loan No. 238369, 1900-01	73 10/-						
1,500	3½%	G. Loan Part of No. 238816, 1900-01	73 10/-						
500	3%	G. Loan No 068715, 1896-97	63 2/-						
TEMPORARY RESERVE.									
24,500	3½%	G. Loan Part of No. 238816, 1900-01	73 10/-	18,038	2 0	12,847	3 0	5,190	15 0
11,400	4½%	G. Loan 1955-60	95 7/-	10,879	14 0	7,880	4 0	2,999	10 0
PENSION FUND									
2,000	3½%	G. Loan No 629546, 1879	73 10/-	1,840	10 0	1,310	15 0	529	11 0
500	3½%	G. Loan No. 244056, 1874-75	73 10/-						
BARCLAY MEMORIAL FUND									
300	3½%	G. Loan No. 170671, 1854-55	73 10/-	515	6 0	367	1 0	148	5 0
100	3½%	G. Loan No. 221703, 1854-55	73 10/-						
100	3½%	G. Loan No. 304677, 1900-01	73 10/-						
100	3½%	G. Loan No. 354795, 1865	73 10/-						
100	3½%	G. Loan No. 243773, 1854-55	73 10/-						
SIR WILLIAM JONES MEMORIAL FUND									
1,500	3½%	G. Loan No 188719, 1854-55	73 10/-	2,208	12 0	1,573	2 0	635	10 0
1,500	3½%	G. Loan Nos. 285807, 292707, 1900-01	73 10/-						
ANNANDALE MEMORIAL FUND									
3,000	3½%	G. Loan Nos 195892, 195893, 195907, 1842-43	73 10/-	2,945	0 0	2,097	8 0	847	8 0
1,000	3½%	G. Loan No 222872, 1854-55	73 10/-						
PERMANENT LIBRARY ENDOWMENT FUND.									
5,000	3½%	G. Loan No. 230065, 1854-55	73 10/-	8,835	0 0	6,292	8 0	2,542	8 0
2,000	3½%	G. Loan Nos. 231119, 230787, 1854-55	73 10/-						
1,000	3½%	G. Loan No 234098, 1854-55	73 10/-						
3,000	3½%	G. Loan No 235353-55, 1854-55	73 10/-						
1,000	3½%	G. Loan No. 222874, 1854-55	73 10/-						
CALCUTTA SCIENCE CONGRESS PRIZE FUND									
3,000	3½%	G. Loan No 235851, 1854-55	73 0/-	2,208	12 0	1,573	2 0	635	10 0
DR BRÜHL MEMORIAL FUND									
1,000	3½%	G. Loan No 235843, 1854-55	73 10/-	796	4 0	524	6 0	211	14 0
JOY GOBIND LAW MEMORIAL FUND									
1,000	3½%	G. Loan No. 213534, 1854-55	73 10/-	2,208	12 0	1,573	2 0	635	10 0
1,000	3½%	G. Loan No. 213535, 1854-55	73 10/-						
500	3½%	G. Loan No 213536, 1854-55	73 10/-						
500	3½%	G. Loan No 219678, 1854-55	73 10/-						
PROVIDENT FUND ACCOUNT									
5,000	4½%	G. Loan No. G. 004779-83, 1934	101/-	5,070	0 0	4,525	0 0	525	0 0
8,17,900			2,37,783	2 0	1,70,280	10 0	67,552	8 0

STATEMENT No. 26.

Account (Government Securities).

1932.

Cr.

			Rs.	As.	P.
By Balance as per Balance Sheet	..	..	2,37,783	2	0
TOTAL	..	..	2,37,783	2	0

STATEMENT No. 27.

1932.

Cash

For the year to 31st

Dr.							
To		Rs.	As.	P.	Rs.	As.	P.
Balance from last Account	..	..			10,251	5	7
Asiatic Society of Bengal	..	32,277	1	3			
Oriental Publication Fund No. 1 Account	..	8,400	0	0			
Oriental Publication Fund No. 2 Account	..	2,400	0	0			
Arabic and Persian Manuscripts Fund Account	..	5,000	0	0			
Barclay Memorial Fund Account	..	23	11	10			
Servants' Pension Fund Account	..	87	7	2			
Annandale Memorial Fund Account	..	139	8	6			
Permanent Library Endowment Fund Account	..	418	2	6			
Sir William Jones Memorial Fund Account	..	104	8	0			
Joy Gobind Law Memorial Fund Account	..	104	4	0			
Calcutta Science Congress Prize Fund Account	..	104	4	0			
Dr. Bruhl Memorial Fund Account	..	34	12	0			
Current Deposit Account, Chartered Bank, London	..	3,142	8	0			
Provident Fund Account	..	1,617	3	0			
Advances Account	..	290	0	0			
Personal Account	..	17,798	4	8			
Publication Fund Account	..	156	9	9			
Savings Bank Deposit Account, Imperial Bank of India	..	100	0	0			
Fixed Deposit Account, Central Bank of India, Calcutta	..	21,081	6	3			
Government of India Treasury Bills Account	..	24,562	8	0			
					1,17,842	2	11
TOTAL	..				1,28,093	8	6

STATEMENT No. 27.

Account.

1932.

December, 1932.

Cr.

By	Rs.	As.	P.	Rs.	As.	P.
Asiatic Society of Bengal	47,831	2	0			
Oriental Publication Fund No. 1 Account ..	5,159	11	0			
Oriental Publication Fund No. 2 Account ..	5,869	7	10			
Sanskrit Manuscripts Fund Account ..	904	14	0			
Arabic and Persian Manuscripts Fund Account ..	2,417	6	3			
Barclay Memorial Fund Account ..	17	14	0			
Annandale Memorial Fund Account ..	1	8	0			
Akbarnama Reprint Account ..	7,764	10	8			
Building Fund Account ..	4,802	11	0			
Building Repair Fund Account ..	4,000	0	0			
Advances Account	100	0	0			
Personal Account ..	1,786	14	3			
Savings Bank Deposit Account, Imperial Bank of India, Calcutta ..	2,004	3	0			
Fixed Deposit Account, Central Bank of India, Calcutta	38,206	0	9			
				1,20,866	6	9
Balance carried forward				7,227	1	9

TOTAL .. 1,28,003 8 6

STATEMENT No. 28.

1932.

Balance

As at 31st

LIABILITIES.

	Rs.	As.	P.	Rs.	As.	P.
Asiatic Society of Bengal	2,20,619	0	4			
Sanskrit Manuscripts Fund Account ..	10,964	6	3			
Arabic and Persian Manuscripts Fund Account	1,331	4	6			
Barclay Memorial Fund Account ..	573	12	2			
Servants' Pension Fund Account ..	2,028	5	10			
Annandale Memorial Fund Account ..	3,056	3	7			
Permanent Library Endowment Fund Account	9,536	0	0			
Sir William Jones Memorial Fund Account ..	2,425	6	0			
Joy Gobind Law Memorial Fund Account ..	2,204	4	0			
Building Fund Account	6,321	9	6			
Calcutta Science Congress Prize Fund Account	2,568	3	7			
Dr. Bruhl Memorial Fund Account ..	1,048	8	0			
Building Repair Fund Account ..	2,000	0	0			
International Catalogue of Scientific Literature Account	4,374	7	8			
Provident Fund Account	10,459	3	1			
Publication Fund Account	7,181	6	0			
				2,86,692	0	6
TOTAL ..				2,86,692	0	6

We have examined the above Balance Sheet and the appended detailed accounts with the Books and Vouchers presented to us and certify that they are in accordance therewith, and set forth correctly the position of the Society as at 31st December, 1932.

PRICE, WATERHOUSE, PEAT & Co.,

Calcutta.
January 23rd. 1933

Auditors,
Chartered Accountants

STATEMENT No. 28.

Sheet.

1932.

December, 1932.

ASSETS.

	Rs.	As.	P.	Rs.	As.	P.
Oriental Publication Fund No. 1 Account ..	5,508	14	10			
Oriental Publication Fund No. 2 Account ..	3,085	9	7			
Advances Account	570	0	0			
Personal Account	4,093	7	6			
				13,257	15	11
Investment Account				2,37,783	2	0
Savings Bank Deposit Account, Imperial Bank of India				4,839	3	1
Current Deposit Account, Chartered Bank, London	434	1	0			
Fixed Deposit Account, Central Bank of India, Calcutta	23,150	8	9			
				23,584	9	9
Cash and Bank Balances				7,227	1	9
TOTAL				2,86,692	0	6

[APPENDIX IV.]

Abstract Proceedings Council, 1932.

(Rule 48 f.)

ANNUAL MEETING—

Annual Report. Approved.

No. 15. 16-1-32.

Annual Meeting, 1932. Arrangements approved.

No. 16. 16-1-32.

ARTISTIC AND HISTORICAL POSSESSIONS—

Presentation by the Hon'ble Sir B. L. Mitter of the Royal Warrant to him to represent the Empire of India at the League of Nations. The cordial thanks of the Council to be conveyed to the donor.

No. 1. 16-1-32.

Report completion by Dr. Brahmachari of the set of photographs of the past Presidents of the Society. The Council's thanks to be conveyed to Dr. Brahmachari.

No. 1. 27-6-32.

Letter from Dr. B. C. Law offering to present to the Society an enlarged coloured photograph of the late MM. H. P. Shastri. Accept with the Council's cordial thanks to the donor.

No. 2. 25-7-32.

Letter from Mrs. Brahmachari offering to present to the Society a marble bust of Dr. Brahmachari. Accept with thanks.

No. 2. 31-10-32.

Bust of Sir George Grierson by Antonio Marzollo. General Secretary to invite subscriptions from Council Members and sympathisers to enable purchase and proper installation.

No. 18. 28-11-32.

ASSOCIATE MEMBERS—

Quinquennial re-election Associate Members. Recommended for election for a further period of five years the following three Associate Members:—

Rev. Pierre Johanns, S.J.

MM. Anantakrishna Sastri.

Mr. N. N. Vasu.

No. 2. 16-1-32.

BIBLIOTHECA INDICA—

Kashmiri Dictionary. The question of the suitability of dedicating the completed volume to its author, Sir George Grierson, by the Society. To be decided by the President.

No. 19. 29-2-32.

Edition Rubaiyyat of 'Umar-i-Khaiyyam', by M. Mahfuz-ul Haq. Accept with thanks for publication in the Bibliotheca Indica Series. Ask for estimates for printing also from other press than the Baptist

Mission Press. Mr. Percy Brown, Dr. Baini Prashad, and the General Secretary to arrange the details of the edition.

No. 14.

25-4-32.

Interesting reviews of the two recent issues of the Bibliotheca Indica. Record.

No. 1.

25-7-32.

Finance Committee No. 4 (1) of 26-10-32. Refund to Mr. Mahfuz-ul Haq the cost of blocks prepared for the edition of 'Umar-i-Khaiyyam. Recommendation: Pay. Accepted by Council.

No. 6.

31-10-32.

Report completion printing of the Kashmiri Dictionary by Sir George Grierson. Final printing bill to be paid.

No. 14.

31-10-32.

Report completion of the second edition by Prof. H. Jacobi of the Sthaviravalicarita. Editor's fees to be paid.

No. 15.

31-10-32.

Review in the Journal, Royal Asiatic Society, London, of Tarikh-i-Mubarak Shahi, edited by Dr. M. Hidayat Hosain. Record. The Editor to be paid a fee of Re. 1 per page.

No. 1.

28-11-32.

BUILDING—

Finance Committee No. 3 (3) of 14-12-32. Society's contribution to the Building Repair Fund Account as per estimate of Rs. 2,000. Recommendation: Pay. Accepted by Council.

No. 9.

19-12-32.

COMMITTEES—

Constitution of the Standing Committees, 1932-33. To be constituted as follows:—

- | | | | | |
|--------------------------|--|----------------------|----------------------|-------------|
| (a) <i>Finance</i> — | President
Treasurer
General Secretary
Mr. J. C. Mitra. | } <i>Ex-officio.</i> | | |
| (b) <i>Library</i> — | President
Treasurer
General Secretary
Philological
Jt. Philological
Nat. Hist. (Biology)
Nat. Hist. (Phy. Sci.)
Anthropological
Medical
Library | | } <i>Ex-officio.</i> | |
| | | | | Secretaries |
| (c) <i>Publication</i> — | President
Treasurer
General Secretary
Philological
Jt. Philological
Nat. Hist. (Biology)
Nat. Hist. (Phy. Sci.)
Anthropological
Medical
Library | | | |
| | | } <i>Ex-officio.</i> | | |
| | | | | |

No. 12.

29-2-32.

CONDOLENCES—

Notice of the decease of Rev. Fr. E. E. L. M. Durand, a corresponding member of the French School of the Far East, Hanoi. Record with regret.

No. 5. 25-4-32.

Report receipt of news of the death of Prof. W. Caland, an Honorary Fellow of the Society. The General Secretary to convey the condolence of the Society to Mrs. Caland.

No. 6. 25-4-32.

Report death of Mr. B. De. Record with regret.

No. 3. 31-10-32.

Notice of the decease of La R. P. Maximilien Marie Paul Arnoulx de Pirey, a corresponding member of the French School of the Far East. Record with regret.

No. 2. 28-11-32.

Notice of the decease of Dr. Barton Warren Evermann, Director of the Museum and of the Steinhart Aquarium of the California Academy. Record with regret.

No. 3. 28-11-32.

Report receipt of news of the death of Sir Ronald Ross, one of the recipients of the Barclay Memorial Medal. Record with regret. A letter of condolence to be sent to the Ross Institute.

No. 4. 28-11-32.

CONGRATULATIONS AND THANKS—

Presentation by the Hon'ble Sir B. L. Mitter of the Royal Warrant to him to represent the Empire of India at the League of Nations. The cordial thanks of the Council to be conveyed to the donor.

No. 1. 16-1-32.

Letter of thanks from Lt.-Col. R. B. S. Sewell in reply to the letter of condolence, sent by the Society, at the death of Mrs. Sewell. Record.

No. 10. 16-1-32.

Presentation to the Society by Dr. S. L. Hora, on behalf of Dr. Gilbert P. Whitley, of a valuable autograph MS. on the Fishes of Lower Bengal. The cordial thanks of the Council to be conveyed to the donor, Dr. Gilbert P. Whitley, and especially to Dr. Hora, as the Council feels sure that but for the interest shown by Dr. Hora in the affairs of the Society this gift might not have been forthcoming.

No. 11. 16-1-32.

Donations by Dr. U. N. Brahmachari and Mr. James Insch to meet the cost of purchase of 'Dictionary of the Living High-Russian Language'. The cordial thanks of the Council to be conveyed to the donors.

No. 12. 16-1-32.

The President expressed his thanks to the outgoing Members of Council for their services rendered to the Society and for their valued support of himself as Acting President and Chairman of the meetings of Council. Resolved that the Council's thanks be conveyed to the outgoing members.

No. 20. 16-1-32.

On the proposal of Sir C. C. Ghose a cordial vote of thanks to Dr. Brahmachari was carried by acclamation for the valuable services rendered by him to the Society as Acting President; and also for his

presentation to the Society of a series of portraits of the former Presidents.

No. 21. 16-1-32.

On the proposal of Sir C. C. Ghose it was resolved to address a letter of congratulation to Dr. Baini Prashad on behalf of the Council with regard to his election as an Honorary Member of the California Academy of Sciences, San Francisco.

No. 1. 23-3-32.

Letter of thanks from Dr. Baini Prashad in reply to the letter of congratulation addressed to him on behalf of the Council for his election as an Honorary Member of the California Academy of Sciences. Record.

No. 2. 25-4-32.

Report completion by Dr. Brahmachari of the set of photographs of the past Presidents of the Society. The Council's thanks to be conveyed to Dr. Brahmachari.

No. 1. 27-6-32.

Letter from Dr. B. C. Law offering to present to the Society an enlarged, coloured photograph of the late MM. H. P. Shastri. Accept with the Council's cordial thanks to the donor.

No. 2. 25-7-32.

Publication on the Pelecypods by Dr. Baini Prashad as a volume of Prof. Weber's series on the Scientific Results of the Siboga Expedition. The Council's congratulations to be conveyed to Dr. Prashad.

No. 13. 29-8-32.

Letter from Mrs. Brahmachari offering to present to the Society a marble bust of Dr. Brahmachari. Accept with thanks.

No. 2. 31-10-32.

COUNCIL—

The question of holding another Council Meeting in January. No other Council Meeting to be held in January; current business to be finished in the present meeting.

No. 7. 16-1-32.

The President expressed his thanks to the outgoing Members of Council for their services rendered to the Society and for their valued support of himself as Acting President and Chairman of the meetings of Council. Resolved that the Council's thanks be conveyed to the outgoing members.

No. 20. 16-1-32.

On the proposal of Sir C. C. Ghose a cordial vote of thanks to Dr. Brahmachari was carried by acclamation for the valuable services rendered by him to the Society as Acting President; and also for his presentation to the Society of a series of portraits of the former Presidents.

No. 21. 16-1-32.

Signatures signifying acceptance of the election to Council by the Council Members. Record.

No. 1. 29-2-32.

Fixing date of the next (March) Council and Committee Meetings the last Monday in March, 28th, being Easter Monday. Wednesday, March 23rd.

No. 13. 29-2-32.

Letter from Mr. C. W. Gurner intimating his absence from India.
Hold over.

No. 7. 25-4-32.

Vacancy Council. Mr. K. C. Mahindra was unanimously elected a member of Council for the remainder of the year under the terms of Rule 45 and was also appointed a member of the Finance Committee.

No. 12. 27-6-32.

Letter from Mr. James Insch tendering his resignation as Honorary Treasurer and Member of Council. Accept with regret. Formal letter to be addressed to Mr. Insch expressing the cordial thanks of the Council to him for the valuable services rendered by him to the Society by his labours, industry, willingness and profitable advice. Further unanimously resolved to elect Mr. K. C. Mahindra to be Honorary Treasurer *vice* Mr. Insch.

No. 3. 25-7-32.

Recommendation of the Finance Committee No. 5 of 20-7-32. In view of the resignation submitted by the Honorary Treasurer on account of his impending departure from India an unanimous and most cordial vote of thanks and appreciation was passed to Mr. Insch for his devoted and capable work as Honorary Treasurer. Also unanimously resolved to recommend to Council that Mr. K. C. Mahindra be invited to resume the Honorary Treasurership on acceptance of Mr. Insch's resignation. Accepted by Council.

No. 6. 25-7-32.

Vacancy Council. Dr. S. L. Hora was unanimously elected a member of Council for the remainder of the year under the terms of Rule 45.

No. 12. 25-7-32.

The question of having Committee and Council Meetings during the recess months of September and October. No meetings if no urgent business: General Secretary to convene meetings if necessary.

No. 8. 29-8-32.

Resignation from Council of Col. Knowles. Accept with regrets.

No. 11. 29-8-32.

Fixing dates for the next (December) Council and Committee Meetings. Preliminarily to be fixed for the 19th December, General Secretary to have authority to modify in the event of any clashing public function.

No. 10. 28-11-32.

Informal consideration composition of Council, 1933-34. After discussion the following list of candidates for nomination for next year's Council was placed before the meeting for consideration :

President	..	..	The Hon'ble Mr. Justice C. C. Ghose.
Vice-President	..	..	Lt.-Col. R. B. Seymour Sewell.
..	..	..	Dr. L. L. Fermor.
..	..	..	Sir R. N. Mookerjee.
..	..	..	Sir David Ezra.
General Secretary	..	..	Mr. Johan van Manen.
Treasurer	..	..	Mr. K. C. Mahindra.
Phil. Secretary	..	..	Dr. S. K. Chatterji.
Jt. Phil. Secretary	..	..	Dr. M. Hidayat Hosain.
Nat. Hist. Secy. (Biology)	..	..	Dr. Bains Prashad.
Nat. Hist. Secy. (Phy. Sci.)	..	..	Dr. J. N. Mukerjee.
Anthropological Secretary	..	..	Rev. P. O. Boddington.

Medical Secretary	..	Dr. U. N. Brahmachari.
Library Secretary	..	Dr. B. S. Guha.
Member of Council	..	Mr. M. Mahfuz-ul Haq.
" "	..	Mr. L. R. Fawcus.
" "	..	Mr. Percy Brown.
" "	..	Dr. S. L. Hora.
" "	..	Lt.-Col. R. N. Chopra.

Resolved: That the General Secretary do print and circulate to the Members of the Council the list of the Council as at present constituted, together with the new list placed before the meeting, and provided with a blank column for additional names; that these lists shall be returned to the General Secretary within a week of date of issue, that a list be compiled of the candidates finally proposed and be placed before the next Council Meeting to be voted upon.

No. 15.

28-11-32.

Letter from Mr. Gurner regarding his Philological Secretaryship. Record.

No. 3.

19-12-32.

Council nomination, 1933-34. The General Secretary reported that 18 Council Members had returned the list of candidates circulated, duly signed and unanimously approved without any alternate suggestion. Resolved: That the list of names placed before the Council in the November Meeting be declared that of the Council candidates for election to next year's Council, and that it be ordered to be issued to the Resident Members as prescribed in Rule 44.

No. 14.

19-12-32.

FELLOWS—

Recommendations of the Meeting of Fellows. Accept.

No. 3.

16-1-32.

Letter of thanks from M. J. Bacot for his election as an Ordinary Fellow of the Society. Record.

No. 2.

29-2-32.

FINANCE—

Special Finance Committee No. 1 of 16-1-32. Consideration of Budget estimates for 1932-33. Recommendation: On the proposal of Mr. J. C. Mitra unanimously resolved to recommend the Budget proposals for 1932 as placed before the meeting for adoption by the Council. Accepted by Council in its Special Meeting.

No. 5.

16-1-32.

Consideration of the Budget estimates for 1932. Accept Budget as recommended by the Finance Committee.

No. 6.

16-1-32.

Letter from Messrs. Price, Waterhouse, Peat and Co., forwarding certified copies of the Society's balance sheet for 1931. Record.

No. 6.

29-2-32.

Finance Committee No. 3 (c) of 24-2-32. Report by the Honorary Treasurer, of the renewal during January, 1932, of a fixed deposit of Rs. 6,052-11-9 with the Central Bank of India, Ltd., Calcutta, for a further period of one month. Recommendation: Approve. Further recommended that the Hon. Treasurer be authorised to arrange further short term investments of available cash at his discretion. Accepted by Council.

No. 14.

29-2-32.

Finance Committee No. 4 of 24-2-32. Application by the family of the late MM. H. P. Shastri, for payment due to the latter at the moment of his death in respect of salary. Recommendation : That the family be written to that a full month's salary (Rs. 300) will be made over to them on receipt of the books from the Society's Library out on loan with the late MM. H. P. Shastri, and all papers and proofs connected with the Sanskrit Catalogue still in hands of the family. Accepted by Council.

No. 14.

29-2-32.

Finance Committee No. 7 of 24-2-32. Application from the Collecting Sarkar of the Society to be allowed to reduce his monthly deposit for the increase of his security deposit from Rs. 10 to Rs. 5. Recommendation : Grant. Accepted by Council.

No. 14.

29-2-32.

Finance Committee No. 9 of 24-2-32. Letter from the Government of Bengal, Education Department, 9-12-31, No. 2029 Misc., intimating that the local Government will make a reduction of 20 per cent. in the grants hitherto paid to the Asiatic Society of Bengal. Recommendation : The Government be written to ask for sanction to the Society to distribute the proposed reduction at its discretion between the various funds for which various grants are received. Accepted by Council.

No. 14.

29-2-32.

Library Committee No. 4 of 29-2-32. Recommended that the Treasurer, Library Secretary, and General Secretary do meet and prepare a note concerning commitments, standing charges and amount available for further purchases, to be placed before a subsequent meeting of the Committee. Accepted by Council.

No. 15.

29-2-32.

Finance Committee No. 3 of 16-3-32. Report by the Honorary Treasurer of a fixed deposit made during the month with the Central Bank of India, Ltd., Calcutta, for Rs. 15,000 for a period of one month. Recommendation : Approve. Accepted by Council.

No. 4.

23-3-32.

Finance Committee No. 4 (2) of 20-4-32. Report by the Honorary Treasurer of a fixed deposit made during the month with the Central Bank of India, Ltd., Calcutta, for Rs. 7,500 for a period of three months. Recommendation : Approve. Accepted by Council.

No. 9.

25-4-32.

Loss of Rs. 90 by one of the Society's Chaprasis by being pickpocketed in the Park Street Post Office. The amount lost to be written off, and the Chaprasi to be fined one month's wages as disciplinary punishment for his carelessness. In future whenever Society's servants are sent out with amounts in cash over Rs. 100 the cash bearer to be accompanied by a second man.

No. 6.

30-5-32.

Finance Committee No. 3 (v) of 20-7-32. Report by the Honorary Treasurer of a fixed deposit made with the Central Bank of India, Ltd., Calcutta, for Rs. 7,564-2 for a period of six months. Recommendation : Approve. Accepted by Council.

No. 6.

25-7-32.

Recommendation of the Finance Committee No. 4 of 20-7-32. The General Secretary drew attention to the fact that present financial conditions make it desirable that no appreciable unspent balance should be left over at the end of the year in the funds derived from

Government Grants-in-aid. He placed before the meeting a schedule of expenditure during the current year for the Arabic and Persian MS. department as follows:—(1) Payment to the Baptist Mission Press of all composition charges incurred for the unprinted portion of Mr. Ivanow's Arabic MS. Catalogue. Approximately Rs. 2,000. (2) The acquisition of a Rotograph copy of the Vienna MS. of the Persian work *Mirsadu-l-ibad*, etc. (Flugel's Vienna Catalogue. III, p. 417, No. 1939). Approximately Rs. 200-250. (3) The compilation by Mr. Bogdanov of a Bibliography of Bibliographies of Persian and Arabic MSS. Approximately Rs. 200. Unanimously approved. Accepted by Council.

No. 6.

25-7-32.

Investment Funds. The Honorary Treasurer to be authorised to invest during the year such liquid cash as seems desirable to him.

No. 12.

31-10-32.

Finance Committee No. 4 (1) of 25-11-32. The Hon. Treasurer reported of a fixed deposit for Rs. 15,396-2 renewed during the month with the Central Bank of India, Ltd., Calcutta, for another two months. Recommendation: Approve. Accepted by Council.

No. 11.

28-11-32.

Finance Committee No. 4 (2) of 25-11-32. Statement of receipts and expenditure of the Society for the ten months ending with the 31st October, 1932. Recommendation: Record. Accepted by Council.

No. 11.

28-11-32.

Finance Committee No. 4 (3) of 25-11-32. Late MM. H. P. Shastri's allowance for November, 1931. Recommendation: Pay. Accepted by Council.

No. 11.

28-11-32.

Finance Committee No. 4 (4) of 25-11-32. Authority to make payments before the end of the year of all bills. Recommendation: That the Council be asked to authorise the Hon. Treasurer to do so. Accepted by Council.

No. 11.

28-11-32.

Recommendations of the Finance Committee of 14-12-32. Accepted with the modification of the budget estimates.

No. 9.

19-12-32.

Finance Committee No. 3 (1) of 14-12-32. Society's contributions to the Provident Fund for 1932, amounting to Rs. 677-5. Recommendation: Pay. Accepted by Council.

No. 9.

19-12-32.

Finance Committee No. 3 (2) of 14-12-32. Bad Debts written off during the year 1932, amounting to Rs. 2,263-6-6. Recommendation: Write off. Accepted by Council.

No. 9.

19-12-32.

Finance Committee No. 3 (3) of 14-12-32. Society's contribution to the Building Repair Fund Account as per estimate Rs. 2,000. Recommendation: Pay. Accepted by Council.

No. 9.

19-12-32.

Finance Committee No. 3 (4) of 14-12-32. Depreciation of invested medal funds with reference to gold. Recommendation: Recorded that in the opinion of the Committee the cost of no medal should exceed the income of its endowment. Accepted by Council.

No. 9.

19-12-32.

Finance Committee No. 3 (5) of 14-12-32. Increment of salaries for 1933. (No increment granted for 1932.) Recommendation: No increment. Accepted by Council.

No. 9.

19-12-32.

Finance Committee No. 3 (6) of 14-12-32. Budget for 1933 as considered and approved by the Committee Meeting. Recommendation: That the budget estimates as approved in the Special Budget Meeting of the Committee be recommended to the Council for adoption. Council order: Accept with the modification of the budget estimates.

No. 9.

19-12-32.

Budget estimates for 1933. (Special Finance Committee of 14-12-32.) Accept with transfer of Rs. 5,000 budgetted as an increase of the permanent Reserve Fund to Journal and Memoirs.

No. 10.

19-12-32.

FURNITURE—

Furniture Grant. The General Secretary to be authorised to spend available balance of the grant voted for the year on purchase of necessary articles.

No. 11.

31-10-32.

GRANTS—

Finance Committee No. 9 of 24-2-32. Letter from the Government of Bengal, Education Department, 9-12-31, No. 2029 Misc., intimating that the local Government will make a reduction of 20 per cent. in the grants hitherto paid to the Asiatic Society of Bengal. Recommendation: The Government be written to ask for sanction to the Society to distribute the proposed reduction at its discretion between the various funds for which various grants are received. Accepted by Council.

No. 14.

29-2-32.

HONORARY FELLOWS—

Report receipt of news of the death of Prof. W. Caland, an Honorary Fellow of the Society. The General Secretary to convey the condolence of the Society to Mrs. Caland.

No. 6.

25-4-32.

INDIAN MUSEUM -

Representation of the Society on the Board of Trustees, Indian Museum. Dr. U. N. Brahmachari to be re-nominated.

No. 6.

28-11-32.

INDIAN SCIENCE CONGRESS—

Letter of thanks from the 19th Indian Science Congress. Record.

No. 4.

29-2-32.

INVITATIONS—

Invitation to H.E. the Governor of Bengal to preside over the Annual Meeting in February. Invite.

No. 17.

28-11-32.

KAMALA LECTURESHIP—

Representation on the Selection Committee, Kamala Lectureship, Calcutta University, in place of MM. H. P. Shastri, deceased. Dr. U. N. Brahmachari to be the Society's representative.

No. 7.

29-2-32.

Representation on the Selection Committee, Kamala Lectureship, Calcutta University, for the year 1932-33. Dr. U. N. Brahmachari to be the Society's representative.

No. 8.

23-3-32.

LECTURES—

Public Lectures, Winter, 1932-33. The General Secretary to arrange.

No. 4.

25-7-32.

Winter lectures, 1932-33. The General Secretary to arrange programme to conclude preferably before March.

No. 16.

28-11-32.

LIBRARY—

Presentation to the Society by Dr. S. L. Hora, on behalf of Dr. Gilbert P. Whitley, of a valuable autograph MS. on the Fishes of Lower Bengal. The cordial thanks of the Council to be conveyed to the donor, Dr. Gilbert P. Whitley, and especially to Dr. Hora, as the Council feels sure that but for the interest shown by Dr. Hora in the affairs of the Society this gift might not have been forthcoming.

No. 11.

16-1-32.

Donations by Dr. U. N. Brahmachari and Mr. James Insch to meet the cost of purchase of 'Dictionary of the Living High-Russian Language'. The cordial thanks of the Council to be conveyed to the donors.

No. 12.

16-1-32.

Library Committee No. 4 of 29-2-32. Recommended that the Treasurer, Library Secretary, and General Secretary do meet and prepare a note concerning commitments, standing charges and amount available for further purchases, to be placed before a subsequent meeting of the Committee. Accepted by Council.

No. 15.

29-2-32.

Circular letter to the General Secretary and Honorary Treasurer regarding the Monthly Periodical 'Current Science'. Record, subscribe to Journal.

No. 4.

31-10-32.

LOAN OF BOOKS AND MANUSCRIPTS—

Loan of MS. to Mr. Sabitri Prasanna Chatterji. The General Secretary to invite the applicant to come and talk over his requirements.

No. 19.

28-11-32.

MEMBERSHIP—

Letter from the Secretary to the Raja Bahadur of Nashipur. Record. If further occasion arises a courteous letter to be sent inviting the Raja to become a Resident Member.

No. 8.

29-2-32.

Finance Committee No. 3 (b) of 24-2-32. List of members in arrears with subscriptions for four or more quarters. Recommendation : Apply Rules. Accepted by Council.

No. 14.

29-2-32.

List of members in arrears with subscriptions for four or more quarters. Copies of the lists to be sent to all Council Members with a view to exercising their good offices in the matter. Defer action pending further consideration.

No. 18.

29-2-32.

Finance Committee No. 4 (1) of 20-4-32. List of members in arrears with subscriptions for four or more quarters. Recommendation : Apply Rules. Accepted by Council.

No. 9. 25-4-32.

List of members in arrears with subscription for four or more quarters. Apply Rules.

No. 13. 25-4-32.

Finance Committee No. 3 (b) of 20-7-32. List of members in arrears with subscriptions for four or more quarters. Recommendation : Apply Rules. Accepted by Council.

No. 6. 25-7-32.

List of members in arrears with subscriptions for four or more quarters. Apply Rules.

No. 10. 25-7-32.

Removal of names of members in arrears with subscriptions under Rules 37 and 38. Apply Rules.

No. 11. 25-7-32.

Recess months. No General Meetings during September and October, but the General Secretary to be empowered to arrange otherwise in case a meeting becomes desirable.

No. 13. 25-7-32.

Removal of names under Rules 37 and 38. Apply Rules. Announce names 1-11 as removed under Rules 37 and 38.

No. 7. 29-8-32.

Consideration of the removal of names under Rule 40. Apply Rules.

No. 10. 31-10-32.

MEMORIALS -

Recommendations of the Barclay Memorial Medal Advisory Board. Accept.

No. 4. 16-1-32.

Matters relating to the 'Paul Johannes Brühl Memorial Medal'. That the General Secretary do address a letter to Dr. S. P. Agharkar conveying the following resolution of the Council :—'The Council of the Asiatic Society of Bengal has carefully considered the question raised by Dr. S. P. Agharkar and they are of opinion that what has been done by the General Secretary on behalf of the Council has their entire concurrence'.

No. 8. 16-1-32.

Recommendations of the 'Paul Johannes Brühl Memorial Medal' Advisory Board. Accept.

No. 9. 16-1-32.

Letter of thanks from Rev. E. Blatter, S.J., for the award to him of the 'Paul Johannes Brühl Memorial Medal'. Record.

No. 3. 29-2-32.

Letter of thanks from Lt.-Col. R. B. S. Sewell for the award to him of the Barclay Memorial Medal. Record.

No. 3. 25-4-32.

Appointment Advisory Boards for : (a) Sir William Jones Memorial Medal (Literature). The Board to consist of :—Philological, Joint-Philological Secretaries, Dr. S. K. Chatterji, Dr. U. N. Brahmachari,

and the General Secretary. (b) Joy Gobind Law Memorial Medal. The Board to consist of :—Biological Secretary, Lt.-Col. R. B. S. Sewell, Dr. S. L. Hora, Dr. S. C. Law, and the General Secretary.

No. 9. 29-8-32.

Recommendations of the Sir William Jones Medal Advisory Board. Accept.

No. 5. 19-12-32.

Recommendation of the 'Joy Gobind Law Memorial Medal' Advisory Board. Accept.

No. 6. 19-12-32.

The question of the metal contents for the various medals awarded by the Society in connection with the enhanced price of Gold. A Committee consisting of Col. Sewell, Dr. Brahmachari, and the General Secretary to consider the matter and to decide in each case the metal for the medals to be awarded next year whether bronze or alloy.

No. 7. 19-12-32.

Finance Committee No. 3 (4) of 14-12-32. Depreciation of invested medal funds with reference to gold. Recommendation : Recorded that in the opinion of the Committee the cost of no medal should exceed the income of its endowment. Accepted by Council.

No. 9. 19-12-32.

MISCELLANEOUS—

Letter of thanks from the family of the late MM. H. P. Shastri. Record.

No. 5. 29-2-32.

Letter from the Smithsonian Institution, Washington, U.S.A., regarding the publication of the International Catalogue of Scientific Literature. Dr. Fermor and Dr. Prashad, together with any other member conversant with the matter kindly to submit a memo for the Council's guidance.

No. 10. 29-2-32.

Finance Committee No. 4 of 24-2-32. Application by the family of the late MM. H. P. Shastri, for payment due to the latter at the moment of his death in respect of salary. Recommendation : That the family be written to that a full month's salary (Rs. 300) will be made over to them on receipt of the books from the Society's Library out on loan with the late MM. H. P. Shastri, and all papers and proofs connected with the Sanskrit Catalogue still in hands of the family. Accepted by Council.

No. 14. 29-2-32.

Letter from Sir David Ezra regarding the International Office for the Protection of Nature. Request Sir David Ezra, Dr. Baini Prashad, and Dr. S. L. Hora, with power to consult others, to advise the Council.

No. 2. 23-3-32.

B. De Memorial. Report by the General Secretary concerning the verbally expressed intention of the sons of the late Mr. B. De to donate a sum of money to the Society to provide for a memorial to the late Mr. B. De. The General Secretary to negotiate.

No. 13. 31-10-32.

Letter from the Registrar, Calcutta University, regarding the preservation of the scientific relics of eminent scientists in India. Suitable reply to be sent.

No. 7. 28-11-32.

Letter from the Secretary to the Educational Department, Government of Bengal, regarding a joint catalogue of books in the Prussian Libraries, etc. Record.

No. 8.

28-11-32.

Letter from the Director, Z.S.I., concerning the proposal to suppress the post of Director, Z.S.I. Record that the Society contemplates with regret the contemplated abolition of the post of Director, Zoological Survey of India. A Committee consisting of Col. Sewell, Dr. Brahmachari, and Mr. Fawcett to consider the matter and to be empowered to instruct the General Secretary as to the terms in which to address the Government of India on the matter.

No. 4.

19-12-32.

PATRONS -

Patronship of the Society, Sir John Anderson, the new Governor of Bengal. Address letter of welcome to the incoming governor and request him to accept the patronship of the Society. Address a letter to the outgoing Governor conveying the Society's thanks and good wishes.

No. 9.

23-3-32.

Letter from the Private Secretary to H.E. the Governor of Bengal intimating acceptance by H.E. of the Patronship of the Society. Record.

No. 1.

25-4-32.

PRESENTATIONS -

Presentation by the Hon'ble Sir B. L. Mitter of the Royal Warrant to him to represent the Empire of India at the League of Nations. The cordial thanks of the Council to be conveyed to the donor.

No. 1.

16-1-32.

Letter from Dr. B. C. Law offering to present to the Society an enlarged coloured photograph of the late MM. H. P. Shastri. Accept with the Council's cordial thanks to the donor.

No. 2.

25-7-32.

Presentation on behalf of Sir J. C. Coyajee by the Principal, Presidency College, Calcutta, of an English edition of Swedenborg's works in 28 volumes. Accept with thanks.

No. 1.

31-10-32.

Letter from Mrs. Brahmachari offering to present to the Society a marble bust of Dr. Brahmachari. Accept with thanks.

No. 2.

31-10-32.

Letter from Mr. C. W. Gurner presenting to the Society a set of Journal of the Hellenic Society, Great Britain. Accept with thanks to donor.

No. 2.

19-12-32.

PROVIDENT FUND—

Finance Committee No. 8 of 24-2-32. Application from the junior Pandit, B. B. Mukherjee, to be allowed to join the Society's Provident Fund. Recommendation: That the application be granted provided the applicant waives any claim to increase of his salary in consequence of his joining the Fund and does not raise the question of his confirmation in consequence. Accepted by Council.

No. 14.

29-2-32.

Finance Committee No. 3 (1) of 14-12-32. Society's contributions to the Provident Fund for 1932, amounting to Rs. 677-5. Recommendation: Pay. Accepted by Council.

No. 9. 19-12-32.

REPRESENTATION—

Notice concerning the International Congress of Mathematics, Zurich, September, 1932. The General Secretary to endeavour to make suitable arrangements.

No. 2. 27-6-32.

Representation of the Society at the Ninth International Congress for the History of Medicine, Bucharest, September, 1932. The General Secretary to endeavour to make suitable arrangements.

No. 3. 27-6-32.

Representation of the Society at the 60th anniversary celebrations to commemorate the foundation of the German Society for Natural History and Ethnography in Tokyo. Letter of congratulation to be sent.

No. 5. 28-11-32.

REQUESTS—

Request from the Mining and Geological Institute of India for the use of the Society's Hall for their Annual Meeting on the 29th January. Grant.

No. 13. 16-1-32.

Request for the use of the Society's Hall for a lantern lecture on Saturday, the 16th April, by the Flying Club. Grant. The General Secretary's letter approved.

No. 4. 25-4-32.

Request from Mr. O. C. Gangoly for the loan of two plate works from the Society's Library. Grant.

No. 4. 27-6-32.

Letter from the Registrar, Calcutta University, requesting the Society to nominate an expert to serve on the Committee to appoint a Professor of Zoology for the University. Dr. Baini Prashad to be the Council's nominee.

No. 5. 27-6-32.

Request for the use of the Society's Hall by the Mining and Geological Institute of India. Grant. The General Secretary's letter approved.

No. 11. 27-6-32.

Letter from Mr. Percy Brown asking for the loan of certain relics connected with Warren Hastings to the Trustees of the Victoria Memorial at the occasion of an exhibition celebrating the bi-centenary of Warren Hastings' birth. Grant, including Kettle's portrait. Loan to be made under Mr. Percy Brown's personal supervision and responsibility.

No. 16. 31-10-32.

Request for the use of the Society's Hall by the Mining and Geological Institute of India for their Annual Meeting. Approve.

No. 1. 19-12-32.

STAFF—

Finance Committee No. 5 of 24-2-32. Application by Pandit Aghorenath Bhattacharya to be granted salary for the period he was on

sick leave. Recommendation : That the application be granted as a special case without force of precedent. Accepted by Council.

No. 14.

29-2-32.

Finance Committee No. 6 of 24-2-32. Application from Mr. H. A. Brown, Stenographer, for a loan of Rs. 150. Recommendation : Decline. Accepted by Council.

No. 14.

29-2-32.

Finance Committee No. 8 of 24-2-32. Application from the junior Pandit, B. B. Mukherjee, to be allowed to join the Society's Provident Fund. Recommendation : That the application be granted provided the applicant waives any claim to increase of his salary in consequence of his joining the Fund and does not raise the question of his confirmation in consequence. Accepted by Council.

No. 14.

29-2-32.

Loss of Rs. 90 by one of the Society's Chaprasis by being pickpocketed in the Park Street Post Office. The amount lost to be written off, and the Chaprasi to be fined one month's wages as disciplinary punishment for his carelessness. In future whenever Society's servants are sent out with amounts in cash over Rs. 100 the cash bearer to be accompanied by a second man.

No. 6.

30-5-32.

Report sickness of menial staff. The General Secretary to use his discretion in the matter.

No. 12.

29-8-32.

Finance Committee No. 3 (5) of 14-12-32. Increment of salaries for 1933. (No increment granted for 1932.) Recommendation : No increment. Accepted by Council.

No. 9.

19-12-32.

VISITS—

Report visit to the Society of the Hon'ble Mr. C. Zaffrulla Khan, Member for Education, Health and Lands, Government of India. Record.

No. 1.

29-8-32.

**List of
Patrons,
Officers, Council Members, Members,
Fellows, and Medallists
of the
Asiatic Society of Bengal,
On the 31st December, 1932.**

PATRONS OF THE ASIATIC SOCIETY OF BENGAL.

1931	..	..	H.E. the Earl of Willingdon, G.M.S.I., G.C.M.G., G.M.I.E., G.B.E., Viceroy and Governor- General of India.
1932	..	..	H.E. the Right Honourable Sir John Anderson, P.C., G.C.B., G.C.I.E., Governor of Bengal.
1910-1916	..	..	Lord Hardinge of Penshurst, K.G., P.C., G.C.B., G.C.M.G., G.C.S.I., G.C.I.E., K.C.M.G., G.C.V.O., K.C.V.O., C.B., C.V.O., I.S.O.
1916-1921	..	..	Lord Chelmsford, P.C., K.C.M.G., G.C.M.G., G.C.S.I., G.C.I.E., G.B.E.
1917-1922	..	..	Marquess of Zetland, P.C., G.C.S.I., G.C.I.E.
1921-1926	..	..	Earl of Reading, G.C.B., P.C., G.C.V.O., K.C.V.O., G.B.E.
1922-1927	..	..	Earl of Lytton, P.C., G.C.S.I., G.C.I.E.
1926-1931	..	..	Baron Irwin, of Kirby under Dale, P.C., G.C.S.I., G.C.I.E.
1927-1932	..	..	Colonel Sir Francis Stanley Jackson, P.C., G.C.I.E.

OFFICERS AND MEMBERS OF COUNCIL OF THE ASIATIC SOCIETY OF BENGAL DURING THE YEAR 1932.

Elections Annual Meeting.

President.

The Hon'ble Mr. Justice C. C. Ghose, Kt., Barrister-at-Law.

Vice-Presidents.

Lt.-Col. R. B. Seymour Sewell, M.A., M.R.C.S., L.R.C.P., Sc.D. (Cantab.),
F.L.S., F.Z.S., I.M.S., F.A.S.B.

L. L. Fermor, Esq., O.B.E., D.Sc., A.R.S.M., F.G.S., M.Inst.M.M.,
F.A.S.B.

Sir R. N. Mookerjee, K.C.I.E., K.C.V.O., Hon. F.A.S.B.

Lt.-Col. R. Knowles, B.A. (Cantab.), M.R.C.S., L.R.C.P., I.M.S., F.A.S.B.

Secretaries and Treasurer.

General Secretary :—Johan van Manen, Esq., C.I.E., F.A.S.B.

Treasurer :—James Insch, Esq.

Philological Secretary :—C. W. Gurner, Esq., B.A. (Oxon.), I.C.S.

Joint Philological Secretary :—Shamsu'l 'Ulama Mawlawi M. Hidayat
Hosain, Khan Bahadur, Ph.D., F.A.S.B.

Natural History Secretaries. $\left\{ \begin{array}{l} \text{Biology :—Bainu Prashad, Esq., D.Sc., F.Z.S.,} \\ \text{F.R.S.E., F.A.S.B.} \\ \text{Physical Science :—W. A. Jenkins, Esq., D.Sc.} \\ \text{(Sheffield), I.E.S.} \end{array} \right.$

Anthropological Secretary :—Rev. P. O. Bodding, M.A., F.A.S.B.

Medical Secretary :—Rai Upendra Nath Brahmachari, Bahadur, M.A.,
M.D., Ph.D., F.A.S.B.

Library Secretary :—B. S. Guha, Esq., M.A., Ph.D. (Harvard).

Other Members of Council.

Sir J. C. Coyajee, Kt., B.A. (Cantab.), LL.B., I.E.S.

M. Mahfuz-ul Haq, Esq., M.A.

Sir David Ezra, Kt., F.Z.S., M.B.O.U.

L. R. Fawcus, Esq., B.A. (Cantab.), I.C.S.

Percy Brown, Esq., A.R.C.A.

APPOINTMENTS, TRANSFERS, ETC. DURING THE YEAR.

Mr. James Insch, resigned on 31st July, 1932, and was replaced by
Mr. Mahindra.

Dr. Hora was appointed Council Member from the 1st August, 1932.

Col. Knowles resigned with effect from the 27th August, 1932.

Mr. Gurner, absent from the 7th April to the end of the year.

Dr. Jenkins, absent from the 1st April to the end of the year.

Sir David Ezra, absent from 4-5-32 to 1-11-32.

Mr. Fawcus, absent from 20-4-32 to 1-11-32.

Dr. Fermor, absent from 4-5-32 to 16-11-32.

Sir C. C. Ghose, absent from 10-5-32 to 29-5-32, from 2-10-32 to 13-11-32
and from the 15th December to the end of the year.

Sir J. C. Coyajee, absent from the 26th May to the end of the year.

Mr. Haq, absent from 15-5-32 to 1-7-32 and from 1-10-32 to 1-11-32.

Dr. Brahmachari, absent from 29-5-32 to 27-6-32.

Dr. Guha, absent from 9-5-32 to 10-7-32 and from 1-12-32 to 15-12-32.

Col. Sewell, absent from 1-1-32 to 22-9-32.

**OFFICERS AND MEMBERS OF COUNCIL OF
THE ASIATIC SOCIETY OF BENGAL
ELECTED FOR THE YEAR 1933.**

President.

The Hon'ble Mr. Justice C. C. Ghose, Kt., Barrister-at-Law

Vice-Presidents.

Lt.-Col. R. B. Seymour Sewell, M.A., M.R.C.S., L.R.C.P.,
Sc.D. (Cantab.), F.L.S., F.Z.S., I.M.S., F.A.S.B.
L. L. Fermor, Esq., O.B.E., D.Sc., A.R.S.M., F.G.S.,
M.Inst.M.M., F.A.S.B.
Sir R. N. Mookerjee, K.C.I.E., K.C.V.O., Hon. F.A.S.B.
Sir David Ezra, Kt., F.Z.S., M.B.O.U.

Secretaries and Treasurer.

General Secretary :—Johan van Manen, Esq., C.I.E., F.A.S.B.
Treasurer :—K. C. Mahindra, Esq., B.A. (Cantab.).
Philological Secretary :—S. K. Chatterji, Esq., M.A., D.Lit.
(Lond.).
Joint Philological Secretary :—Shamsu'l 'Ulama Mawlawi
M. Hidayat Hosain, Khan Bahadur, Ph.D., F.A.S.B.
Natural History Secretaries. { Biology :—Baini Prashad, Esq., D.Sc., F.Z.S.,
F.R.S.E., F.A.S.B.
Physical Science :—J. N. Mukherjee, Esq.,
D.Sc. (Lond.) F.C.S. (Lond.).
Anthropological Secretary :—Rev. P. O. Bodding, M.A.,
F.A.S.B.
Medical Secretary :—Rai Upendra Nath Brahmachari,
Bahadur, M.A., M.D., Ph.D., F.A.S.B.
Library Secretary :—B. S. Guha, Esq., M.A., Ph.D. (Harvard).

Other Members of Council.

M. Mahfuz-ul Haq, Esq., M.A.
L. R. Fawcus, Esq., B.A. (Cantab.), I.C.S.
Percy Brown, Esq., A.R.C.A.
S. L. Hora, Esq., D.Sc. (Edin.), F.Z.S., F.R.S.E., F.A.S.B.
Lt.-Col. R. N. Chopra, M.A., M.B., I.M.S., F.A.S.B.

ORDINARY MEMBERS.

R=Resident. N=Non-Resident. F=Foreign. A=Absent. L=Life.

An Asterisk is prefixed to names of Ordinary Fellows of the Society.

Date of Election.		
6-5-25	R	Abbasi , MOHAMMAD AMIN, SHAMS-UL-ULAMA, <i>Assistant Superintendent</i> . Hooghli Madrasah, Hooghli.
5-4-22	R	Abdul Ali , ABUL FAIZ MUHAMMAD, M.A., M.R.A.S., F.R.S.L., F.R.G.S., F.R.H.S. 3, Turner Street, Calcutta.
7-3-27	R	Abdul Kadir , A. F. M., M.A. (ALLAHABAD), MAULVIE FAZIL (PUNJAB), MADRASSAH FINAL (CALCUTTA), <i>Professor</i> , <i>Islamia College</i> . Wellesley Street, Calcutta.
2-11-25	N	Acharya , PARAMANANDA, B.S.C., <i>Archæological Scholar</i> . Mayurbhanj State, Baripada.
2-3-21	R	* Acton , HUGH WILLIAM, C.I.E., M.R.C.S., L.R.C.P., F.A.S.B., LT.-COL., I.M.S. <i>School of Tropical Medicine and Hygiene</i> , Chittaranjan Avenue, Calcutta.
7-12-25	N	Afzal , SYED MOHAMAD, KHAN BAHADUR. <i>Civil Surgeon</i> , <i>Bihar and Orissa Medical Service</i> . Civil Surgeon, Arrah.
2-3-21	R	Agharkar , SHANKAR PURUSHOTTAM. M.A., PH.D., F.L.S., <i>Sir Rash Behari Ghose Professor of Botany</i> , <i>Calcutta University</i> . 35, Ballygunge Circular Road, Calcutta.
7-4-30	N	Ahmad , SYED KHALIL, <i>Provincial Service (retired)</i> . Zafar Manzil, Gaya.
6-6-17	N	Aiyangar , K. V. RANGASWAMI, RAO BAHADUR, M.A., <i>Late Director of Public Instruction</i> , <i>Travancore</i> . Trivandrum, Travancore.
6-12-26	N	* Aiyangar , S. KRISHNASWAMI, M.A., PH.D., M.R.A.S., F.R.HIST.S., F.A.S.B., <i>Rajasevasakta</i> , <i>Professor</i> , <i>University of Madras</i> . "Sripadam", 143, Brodies Road, Mylapore, Madras, S.
1-12-20	N	Akbar Khan , THE HON'BLE MAJOR NAWAB SIR MOHAMMED, K.B.E., C.I.E., <i>Khan of Hoti</i> . Hoti, N.-W.F.P.
3-7-12	F	Andrews , EGBERT ARTHUR, B.A. c/o The Royal Empire Society, Northumberland Avenue, London, W.C.
1-4-29	R	Asadullah , K. M., B.A., <i>Librarian</i> . Imperial Library, Calcutta.
3-3-30	L	Ashton , HUBERT SHORROCK, <i>Merchant</i> . Trueloves, Ingates-tone, Essex, England.
3-11-30	R	Austin , GEORGE JOHN, <i>Sanitary Engineer</i> , <i>Messrs. J. B. Norton & Sons, Ltd.</i> Norton Building, Lalbazar, Calcutta.
4-4-17	N	Awati , P. R., B.A. (CANTAB.), D.I.C., I.E.S., <i>Professor of Zoology</i> . Royal Institute of Science, Mayo Road, Fort, Bombay.
3-3-14	L	* Bacot , J., F.A.S.B., Boulevard Saint-Antoine, 61, Versailles, Seine-et-Oise, France.

Date of Election.		
1-11-26	R	Bagchi , PROBODH CHANDRA, M.A., DR.-ES-LETTRES (PARIS), <i>Member of the A.S. of Paris; Lecturer, Calcutta University.</i> 9, Rustomjee Street, Ballygunge, Calcutta.
1-3-26	R	Bagnall , JOHN FREDERICK, <i>Consulting Engineer</i> 18/4, Ballygunge Circular Road, Calcutta.
2-4-24	N	Bahl , K. N., D.SC., D.PHIL., <i>Professor of Zoology, Lucknow University.</i> Badshabagh, Lucknow.
5-11-24	N	Baidil , A. MANNAN, <i>Assistant Superintendent, Dormitory.</i> Patna College, Bankipur.
7-3-27	N	Bake , A. A., <i>Doctorandus Or. Lit.</i> P.O. Santiniketan.
6-2-18	R	Banerjee , NARENDRA NATH, M.I.P.O.E.E., A.M.I.E., <i>Divisional Engineer, Telegraphs.</i> 38/1, Gariahat Road, Ballygunge, Calcutta.
5-3-24	R	Banerjee , P. N., M.A. (CANTAB.), A.M.I.E., F.C.U., <i>Civil Engineer.</i> 12, Mission Row, Calcutta.
6-5-25	R	Baral , GOKUL CHANDRA, <i>Zemindar, Municipal Councillor and Honorary Presidency Magistrate.</i> 3, Hidaram Banerjee's Lane, Calcutta.
1-11-26	N	Barhut , THAKUR KISHORESINGH JI, <i>State Historian of Patiala Government.</i> History and Research Department, Patiala.
3-8-31		Barua , THE HON'BLE KANAK LAL, RAI BAHADUR, B.L., F.R.S.E., <i>President, Kamarupa Anusundhan Samiti, Minister to the Government of Assam.</i> Shillong, Assam.
3-12-23	R	Barwell , N. F., LT.-COL. (RETD.), M.C., M.A., <i>Bar.-at-Law.</i> First Floor, 10, Middleton Street, Calcutta (and) Aylmerton House, Aylmerton, Norfolk, England.
7-5-28	R	Basak , SARAT CHANDRA, M.A., D.L., <i>Advocate, High Court.</i> 24, Ashutosh Mukherjee Road, Calcutta.
6-1-30	A	Bassewitz , COUNT, <i>late Consul-General for Germany.</i> Europe.
4-3-29	R	Basu , THE HON'BLE BEJOY K., C.I.E., M.A., B.L., <i>Solicitor, High Court.</i> 50, Goaltule Road, Bhawanipore, Calcutta.
3-12-24	R	Basu , JATINDRA NATH, M.A., M.L.C., <i>Solicitor.</i> 14, Baloram Ghose Street, Calcutta.
1-3-26	R	Basu , NARENDRA KUMAR, M.L.C., <i>Advocate, High Court.</i> 12, Ashu Biswas Road, Bhawanipore, Calcutta.
2-1-28	R	Basu , NARENDRA MOHAN, M.Sc., <i>Professor of Physiology.</i> 63, Hindusthan Park, Ballygunge, Calcutta.
7-5-28	R	Basu , NARENDRA NATH, L.M.S., <i>Professor of Obstetrics and Gynaecology, Carmichael Medical College.</i> 7, Raja Bagan Street, Calcutta.
7-1-29	R	Basu , SARAT CHANDRA, <i>Advocate.</i> 143, Dhurumtollah Street, Calcutta.
7-7-09	N	Bazaz , RANGNATH KHEMRAJ, <i>Proprietor, Shri Venkateshwar Press.</i> 7th Khetwadi, Bombay No. 4.
3-7-95	L	Beatson-Bell , REV. SIR NICHOLAS DODD, K.C.S.I., K.C.I.E. Edgecliffe, St. Andrews, Scotland.
4-3-25	R	Benthall , E. C., <i>Merchant.</i> 37, Ballygunge Park, Calcutta.
7-4-09	L	*Bentley , CHARLES A., C.I.E., M.B., D.P.H., D.T.M. & H., F.A.S.B., <i>Professor of Hygiene.</i> University of Egypt, Cairo.
4-11-29	R	Berthoud , GEORGE FELIX, <i>Stock-broker</i> 12, Russell Street, Calcutta.
4-6-28	N	Bhadra , SATYENDRA NATH, RAI BAHADUR, M.A., <i>Principal, Jagannath Intermediate College.</i> Nayabazar, Dacca.
3-5-26	N	Bhagwant Rai , MUNSHI RAI, SARDAR, M.P.H.S., <i>Retired District Judge.</i> Bhagwant Ashram, Patiala.

Date of Election.		
1-8-17	R	*Bhandarkar, DEVADATTA RAMKRISHNA, M.A., PH.D., F.A.S.B. 35, Ballygunge Circular Road, Calcutta.
5-4-26	N	Bhatia, M. L., M.SC., <i>Lecturer in Zoology</i> . Lucknow University, Lucknow.
2-4-28	R	Bhattacharjee, NIRABAN CHANDRA, M.A., <i>Professor of Physiology, Presidency College</i> . 19, Hindusthan Road, Ballygunge, Calcutta.
5-1-31	R	Bhattacharjee, UMESH CHANDRA, M.A., <i>Professor of Philosophy, Bethune College</i> . 181, Cornwallis Street, Calcutta.
7-7-09	R	Bhattacharji, SHIB NATH, M.B. 80, Shambazar Street, Calcutta.
4-11-08	R	Bhattacharya, BISVESVAR, B.A., M.R.A.S. 16, Townshend Road, Bhawanipore, Calcutta.
1-2-22	N	Bhattacharya, VIDHUSHEKHARA, PANDIT, <i>Principal, Vidyabhavana</i> . Visvabharati, Santiniketan, Birbhum.
7-7-24	L	Bhattacharyya, BINOYTOSH, M.A., PH.D., <i>Rajaratna, General Editor, Gaekwad's Oriental Series, and Librarian, Oriental Collections, Baroda State</i> . Baroda.
9-6-22	R	Bhattacharyya, SIVAPADA, M.D. 48B, Kailas Bose Street, Calcutta.
4-6-28	N	Bhattacharya, NALINI KANTA, M.A., <i>Curator, Dacca Museum</i> . Ramna, Dacca
6-4-31	R	Bhose, JOTISH CHANDER, M.A., B.L., <i>Advocate, Calcutta High Court</i> . 24A, Ray Bagan Street, Calcutta.
5-3-28	R	Biswas, CHARU CHANDRA, C.I.E., M.A., B.L., <i>Advocate, High Court</i> 58, Puddopukur Road, P.O. Elgin Road, Calcutta.
1-8-23	R	Biswas, KALIPADA, M.A. Royal Botanic Garden, Sibpur, Howrah.
3-1-27	N	Bivar, HUGH GODFREY STUART, I.C.S., <i>District and Sessions Judge</i> . Murshidabad.
1-2-93	L	*Bodding, REV. P. O., M.A (CHRIST.), F.A.S.B. Mohulpahari, Santhal Parganas.
6-5-25	R	Bose, H. M., B.A., <i>Bar-at-Law</i> . 25/1, Rawdon Road, Calcutta
6-3-95	R	*Bose, SIR JAGADIS CHANDRA, KT, C.S.I., C.I.E., F.R.S., M.A., D.S.C., F.A.S.B. Bose Institute, 91, Upper Circular Road, Calcutta.
5-4-22	N	Bose, JOGESH CHANDRA, VIDYABINODE, <i>Sub-Manager, Contai Khas Mahal</i> . Contai, Dt. Midnapore.
6-7-25	R	Bose, MANMATHA MOHAN, M.A., <i>Professor, Scottish Church College</i> . 19, Gokul Mitra Lane, Hatkhola, Calcutta.
2-3-31	N	Bose, SUDHANSU KUMAR, B.S.C. (CAL.), A.R.S.M., B.S.C. (MINING), <i>London, Professor of Mining and Surveying</i> . Indian School of Mines, Dhanbad.
5-11-28	N	Bose MULICK, G. N., M.A., <i>Professor of History</i> . Meerut College, Meerut, U.P
4-5-31	R	Bottomley, JOHN MELLOR, B.A. (OXON.), I.E.S., <i>Director of Public Instruction, Bengal</i> . 1, Sunny Park, Ballygunge, Calcutta.
1-1-08	L	*Brahmachari, UPENDRA NATH, RAI BAHADUR, M.A., PH.D., M.D., F.A.S.B. 82/3, Cornwallis Street, Calcutta.
7-11-27	N	Brahmachary, SARAT CHANDRA, RAI BAHADUR, M.A., B.T. Kasba Road, Ballygunge, P.O. Dhakuria, 24-Pergs.
3-7-07	L	*Brown, JOHN COGGIN, O.B.E., D.S.C., F.G.S., M.I.M.E., M.INST.M.M., M.I.E., F.A.S.B. c/o Messrs. Grindlay & Co., 54, Parliament Street, Westminster, London, S.W.1.
6-10-09	R	Brown, PERCY, A.R.C.A., <i>Curator, Victoria Memorial</i> . Calcutta.

Date of Election.		
6-10-09	L	*Brühl, PAUL JOHANNES, I.S.O., D.S.C., F.C.S., F.G.S., F.A.S.B. 2, Convent Road, Bangalore.
8-1-96	F	*Burn, SIR RICHARD, KT., C.S.I., F.A.S.B. 9, Staverton Road, Oxford, England.
2-4-13	R	Calder, CHARLES CUMMING, B.S.C., F.L.S., <i>Superintendent, Royal Botanic Garden.</i> Sibpur, Howrah.
4-11-29	R	Campbell, G. R., <i>Partner, Messrs. Mackinnon Mackenzie & Co.</i> 16, Strand Road, Calcutta.
7-2-27	R	Captain, DARA MANEKSHAW, <i>Merchant.</i> 1, Corporation Street, Calcutta.
1-9-20	R	Chakladar, HARAN CHANDRA, M.A. 28/4, Srimohan Lane, Kalighat, Calcutta.
7-3-32	R	Chakraborty, KHIRODE BEHARI, <i>Engineer and Manufacturer.</i> 7, Hindusthan Park, P.O. Ballygunge, Calcutta.
4-7-27	R	Chakravarti, CHINTAHARAN, M.A., <i>Lecturer, Bethune College.</i> 28/3, Sahanagar Road, Kalighat, Calcutta.
3-2-30	N	Chakravarti, M. N., M.S.C., A.T.S. "Gitanjali", 15, Lodge Road, Lahore.
3-3-09	R	Chakravarti, NILMANI, M.A., <i>Professor of Sanskrit and Pali, Presidency College.</i> Calcutta.
3-1-27	N	Chakravarty, NIRANJANPRASAD, M.A., PH.D. (CANTAB.), <i>Government Epigraphist.</i> Office of the Government Epigraphist, Ootacamund, Nilgiris, S. India.
6-1-30	R	Chakraverti, SHRISH CHANDRA, B.L., <i>Attorney-at-Law, High Court, Calcutta.</i> 2, Marquis Street, Calcutta.
1-9-20	R	*Chanda, RAMAPRASAD, RAI BAHADUR, B.A., F.A.S.B. P. 463, Manoharpukur Road, Kalighat, Calcutta.
3-1-06	L	Chapman, JOHN ALEXANDER, <i>Librarian, Rampur State Library.</i> Rampur.
7-5-28	R	Chatterjee, SIR NALINI RANJAN, KT., M.A., B.L., <i>Retired Judge and sometime acting Chief Justice, Calcutta.</i> 91A, Harish Mukerjee Road, Bhawanipore, Calcutta.
7-2-27	R	Chatterjee, ASHOKE, B.A. (CAL.), B.A. (CANTAB.), <i>Editor, "Welfare".</i> 91, Upper Circular Road, Calcutta.
27-10-15	F	Chatterjee, SIR ATUL CHANDRA, K.C.I.E., K.C.S.I., <i>Late High Commissioner for India.</i> Withdean, Cavendish Road, Weybridge, Surrey, England.
1-10-20	R	Chatterjee, NIRMAL CHANDRA. 52, Haris Mukerjee Road, Bhawanipore, Calcutta.
4-7-27	R	Chatterjee, PATITPABON, M.A., B.L., <i>Vakil, High Court.</i> 84, Harrison Road, Calcutta.
4-7-32	R	Chatterjee, SABITRI PRASANNA, B.A., KAVYABINODE, <i>Editor, "Upasana".</i> 56, Dhurumtollah Street, Calcutta.
5-1-31	R	Chatterji, DURGACHARAN, M.A., P.R.S., <i>Lecturer in Sanskrit, Bethune College</i> 181, Cornwallis Street, Calcutta.
7-5-28	R	Chatterji, KEDAR NATH, B.S.C. (LONDON), A.E.C.S. (LONDON). 43, Wellesley Street, Calcutta.
7-6-11	R	Chatterji, KARUNA KUMAR, LT.-COL., I.T.F., M.C., V.H.A.S. 6/1, Wood Street, Calcutta.
5-3-24	R	Chatterji, MOHINI MOHAN, M.A., B.L., <i>President, Incorporated Law Society of Calcutta.</i> 33, McLeod Street, Calcutta.
6-8-24	R	Chatterji, SUNITI KUMAR, M.A. (CAL.), D.LIT. (LONDON), <i>Khaira Professor of Linguistics, Calcutta University.</i> "Sudharma", 16, Hindusthan Park, (off Ras-bihari Avenue East End), Ballygunge, Calcutta.
5-11-24	R	Chattopadhyay, K. P., M.S.C., <i>Education Officer, Corporation of Calcutta.</i> 55/1, Old Ballygunge 1st Lane, Calcutta.

Date of Election.		
2-11-25	N	Chattopadhyaya, KSHETRESA CHANDRA, M.A., <i>Lecturer in Sanskrit.</i> Allahabad University, Allahabad.
1-4-14	R	Chaudhuri, GOPAL DAS. 32, Beadon Row, Calcutta.
3-8-25	N	Chhibber, H. L., M.Sc., F.G.S., F.R.G.S., <i>Assistant Superintendent, Geological Survey of India, Burma Party.</i> 230, Dalhousie Street, Rangoon.
6-12-26	R	Chokhani, SREENARAYAN, <i>Secretary, Shree Hanuman Pustkalaya.</i> 8, New Ghuseri Road, Salkea, Howrah.
5-12-23	R	Chopra, B. N., D.Sc., F.L.S., <i>Assistant Superintendent, Zoological Survey of India.</i> Indian Museum, Calcutta.
1-2-22	R	*Chopra, R. N., M.A., M.D. (CANTAB.) LT.-COL., I.M.S., F.A.S.B., <i>Professor of Pharmacology.</i> School of Tropical Medicine and Hygiene, Chittaranjan Avenue, Calcutta.
5-11-28	R	Chopra, GOPICHAND. 47, Khangraputty, Calcutta.
5-12-27	L	Chowdhury, SIR CHHAJURAM, KT., C.I.E., M.L.C. 21, Belvedere Road, Calcutta.
2-4-28	R	Chowdhury, RAI JATINDRANATH, <i>Zemindar.</i> 36, Russa Road, Tollygunge, Calcutta.
3-7-07	L	*Christie, WILLIAM ALEXANDER KYNOCH, B.Sc., Ph.D., M.INST.M.M., F.A.S.B. 10, Inkerman Terrace, Kensington, London, W. 8.
3-11-09	A	*Christophers, SIR SAMUEL RICKARD, KT., C.I.E., O.B.E., F.R.S., F.A.S.B., M.B., LT.-COL., I.M.S. Central Research Institute, Kasauli.
1-9-15	R	Cleghorn, MAUDE LINA WEST (MISS), F.L.S., F.E.S. 43, Moulahat Road, Calcutta.
1-2-32	F	Clendenin, DAVID LAWRENCE, B.A. (Yale, 1928), 32, East 64 Street, New York City, U.S.A.
2-2-31	R	Clough, John, <i>Barrister-at-Law.</i> 4, Merlin Park, Ballygunge, Calcutta.
1-12-20	A	Connor, SIR FRANK POWELL, KT., LT.-COL., I.M.S., D.S.O., F.R.C.S., <i>Late Professor of Surgery, Medical College.</i> 2, Upper Wood Street, Calcutta.
5-5-30	F	Cooper, G. A. P. 29, Eccleston Street, Eaton Square, London, S.W. 1.
4-11-29	F	*Cotter, GERALD DE PURCELL, B.A., SC.D. (DUBLIN), M.INST.M.M., F.G.S., F.A.S.B. "Norland", Manon Road, Buckingham Shire, England.
3-8-25	N	Coyajee, SIR J. C., KT., B.A. (CANTAB.), LL.B., I.E.S. (RETD.). Andhra University, Waltair, B.N.R.
25-8-87	R	Criper, WILLIAM RISDON, F.C.S., F.I.C., A.R.S.M. Konnagar.
2-11-25	R	Crookshank, HENRY, B.A., B.A.I. (DUBLIN), <i>Assistant Superintendent, Geological Survey of India.</i> Indian Museum, Calcutta.
7-3-32	R	Darbari, M. D., <i>Chartered Accountant.</i> 100, Clive Street, Calcutta.
4-3-25	R	Das, AJIT NATH, RAI BAHADUR, M.R.A.S., F.Z.S., <i>Zemindar.</i> 24, South Road, Entally, Calcutta.
2-7-28	R	Das, PROBODH KUMAR, M.A., B.L. P-84, Park Street Extension, Calcutta.
3-12-24	R	Das, SURENDRA NATH, M.B., <i>Medical Practitioner.</i> 67 Nimtala Ghat Street, Calcutta.
1-9-15	R	Das-Gupta, HEM CHANDRA, M.A., F.G.S., <i>Professor, Presidency College.</i> 60, Chakrabere Road, North, Calcutta.
6-9-22	R	Das-Gupta, SURENDRA NATH, M.A., Ph.D., I.E.S., <i>Principal, Sanskrit College.</i> College Square, Calcutta.

Date of Election		
1-3-26	R	Datta, HIRENDRA NATH, M.A., B.L., Solicitor, High Court. 139, Cornwallis Street, Calcutta.
3-6-25	N	Datta, S. K., B.A., M.B., CH.B (EDIN.), Principal, Forman Christian College. Lahore.
6-8-24	L	Davies, L. M., MAJOR, Royal Artillery. c/o The Lloyds Bank, King's Branch, 6, Pall Mall, London.
7-11-32	R	De, ANIL COOMAR, Proprietor, Calcutta Trading Co., and President of the Bengal Association of Master Printers and Allied Industries. 79-9, Lower Circular Road, Calcutta.
4-3-29	R	De, J. C., M.B., LT.-COL., I.M.S., Professor of Clinical Medicine, Medical College. 229, Lower Circular Road, Calcutta.
19-9-95	L	De, KIRAN CHANDRA, C.I.E., B.A., I.C.S. (RETD.), Manager, Nawab Bahadur of Murshidabad Estate. Lalbagh, Murshidabad.
6-6-17	R	Deb, KUMAR HARIT KRISHNA, M.A., Zemindar. 8, Raja Nabokishen Street, Calcutta.
4-3-25	R	Deb, RAJA KSHITINDRA, RAI MAHASAI OF BANSBERIA RAJ. 21/E, Rani Sankari Lane, Kalighat, Calcutta.
5-12-27	L	Dechhen, H.H. MAHARANI KUNZANG, Maharani of Sikkim Gangtok, Sikkim.
5-5-30	N	Deo, PRATAP CHANDRA BHANJ, Maharajah, Ruler of Mayurbhanj State. P.O. Baripada, Mayurbhanj, B.N.R.
4-2-29	N	Dev, RAJA, RAMCHANDRA, Superintendent, Jagannath Temple. Puri.
4-4-27	R	Dewick, REV. EDWARD CHISHOLM, M.A. (CANTAB.), National Literature Secretary, Y.M.C.A. of India, Burmah and Ceylon. 5, Russell Street, Calcutta.
4-5-10	L	Dhavia, THE HON'BLE MR. JUSTICE SHANKAR BALAJI, B.A., I.C.S., Judge, Patna High Court. Patna.
4-8-20	R	Dikshit, KASHINATH NARAYAN, M.A., Superintendent, Archaeological Survey of India. Indian Museum, Calcutta.
5-1-98	R	Dods, WILLIAM KANE, Agent, Hongkong and Shanghai Banking Corporation. 6, Minto Park, Alipur, Calcutta.
2-2-31	N	Douglas, GORDON WATSON, B.Sc., D.L.M., State Chemist to the Government of Bhopal. State Laboratory, Bhopal, Central India.
2-7-02	L	Doxey, FREDERICK. 37, Strand Road, Calcutta.
7-11-32	R	Driver, DARAB CURSETJI, M.A. (CANTAB.), Barrister-at-Law, Constituted Attorney to Messrs. Tata & Sons, Ltd., Managing Agents for The Tata Iron & Steel Co., Ltd. 100, Clive Street, Calcutta.
6-8-28	N	Drummond, J. G., M.A., I.C.S., J.P., Commissioner, Rajshahi Division. Rajshahi.
1-7-29	A	Dunn, JOHN ALEXANDER, D.SC., D.I.C., F.G.S., Assistant Superintendent, Geological Survey of India. Indian Museum, Calcutta.
5-12-32	R	Dutt, NALINAKSHA, M.A., PH.D., D.LITT. (LOND.), Lecturer, Calcutta University. 91-B, Manicktollah Street, Calcutta.
5-3-28	A	Eberl, OTTO, DR. JUR., Late Vice Consul for Germany. 2, Store Road, Ballygunge, Calcutta.
4-11-29	R	Edwards, L. BROOKE, Manager in India, The Baldwin Loco. Works of Philadelphia, U.S.A. 5, Dalhousie Square, Calcutta.
7-12-31	F	Eliade, MIRCEA. Docteur en Philosophie, Conferentiaire Universitaire. 1, Str. Melodieii, Bucharest (1).
6-2-28	L	Ezra, SIR DAVID, KT., F.Z.S., M.B.O.U. 3, Kyd Street, Calcutta.

Date of Election.		
2-12-29	R	Fawcus , LOUIS REGINALD, B.A. (CANTAB.), <i>Indian Civil Service</i> . 13, Loudon Street, Calcutta.
3-8-04	R	* Fermor , LEWIS LEIGH, O.B.E., A.R.S.M., D.SC., F.G.S., F.A.S.B., <i>Director, Geological Survey of India</i> . Indian Museum, Calcutta.
31-10-06	F	Finlow , ROBERT STEEL, C.I.E., B.SC., F.I.C., <i>Late Director of Agriculture, Bengal</i> . c/o Messrs. Grindlay & Co., Ltd., 54, Parliament Street, London, S.W.1.
2 12-29	F	Fisher , REV. FREDERICK B., S.T.B., PH.D., D.D., LL.D., F.R.S.S. 1430, Cambridge Road, Ann Arbor, Michigan, U.S.A.
4-1-26	F	Fleming , ANDREW, Post Box No. 2436, Johannesburg, S. Africa.
5-1-31	R	Fooks , HERBERT A., 14, Ballygunge Park Road, Ballygunge, Calcutta.
5-11-13	A	Fox , CYRIL S., B.SC., M.I.M.E., F.G.S., <i>Geological Survey of India</i> , Indian Museum, Calcutta.
2-4-19	A	Friel , RALPH, I.C.S., B.A., B.SC. (DUBLIN), J.P., <i>Deputy Commissioner, Assam</i> . Silchar, Assam.
7-3-27	F	Fukushima , NAOSHIRO. 33, Hikawacho, Akasaka, Tokyo, Japan.
4-1-26	R	Gaffar , ABDUL, KHAN BAHADUR, <i>Deputy Magistrate and Deputy Collector, Bengal</i> . 23, Gardner Lane, Entally, Calcutta.
5-11-28	R	Galstaun , JOHN CARAPIET, O.B.E., <i>Merchant and Landholder</i> . 234/4, Lower Circular Road, Calcutta.
1-11-26	R	Galstaun , SHANAZAN, M.A., D.M.R.E., M.R.C.S., L.R.C.P., <i>Medical Practitioner, Radiologist, Medical College Hospital</i> . 39, Theatre Road, Calcutta.
6-10-09	R	Gangoly , ORDHENDRA COOMAR, B.A. 12/1, Gangoly Lane, Calcutta.
7-5-28	R	Ghosal , UPENDRA NATH, M.A., PH.D., <i>Professor of History, Presidency College</i> . 12, Badur Bagan Row, Calcutta.
5-4-26	R	Ghose , BIMAL CHANDRA, <i>Barrister-at-Law</i> . 27/1, Harish Mukherjee Road, Calcutta.
2-4-24	R	Ghose , THE HON'BLE MR. JUSTICE CHARU CHANDRA, KT., <i>Barrister-at-Law, Judge, High Court</i> . 10, Debendra Ghose Road, Bhawanipore, Calcutta.
1-4-29	R	Ghose , DEB PROSONNO, <i>Zemindar</i> . 75, Beadon Street, Calcutta.
7-1-29	R	Ghose , THE HON'BLE MR. JUSTICE MOHIM CHANDRA, B.A. (CAL.), M.A. (CANTAB.), I.C.S. <i>Barrister-at-Law (Inner Temple), Judge, High Court</i> . 4A, Little Russell Street, Calcutta.
3-12-24	R	Ghose , SUSHIL CHANDRA, B.A., <i>Deputy Magistrate</i> . 1, Sikdarbagan Street, Calcutta.
2-4-24	R	Ghosh , K., D.T.M., D.P.H. (CANTAB.), L.M.S., <i>Medical Practitioner</i> . 45, Creek Row, Calcutta.
6-2-18	L	Ghosh , EKENDRA NATH, M.D., M.SC., F.Z.S., F.R.M.S., <i>Professor of Biology, Medical College</i> . 66, Cornwallis Street, Calcutta.
7-3-27	R	Ghosh , PHANINDRA NATH, M.A., PH.D., SC.D. (PADUA), F.INST.P., <i>Sir Rashbehary Ghosh Professor of Applied Physics, University of Calcutta</i> . 92, Upper Circular Road, Calcutta.
5-5-20	R	Ghosh , SUKHENDRA NATH, B.A. (CAL.), B.SC. (GLAS.), M.I.C.E., F.R.SAN.I., M.I.E., <i>Executive Engineer, P.W.D., Central Division, Bengal</i> . 7, Heysham Road, Calcutta.

Date of Election		
4-9-12	R	Ghosh, TARAPADA, Zemindar. 14, Paddapukur Street, Kidderpore, Calcutta.
1-2-26	R	Ghuznavi, A. H., M.L.A., Zemindar. 18, Canal Street, Entally, Calcutta.
6-8-28	R	Ghuznavi, ISKANDER S. K., Zemindar and Member, Advisory Board of Industries, Government of Bengal. 30, Theatre Road, Calcutta (and) Dilduar, Mymensingh.
1-2-26	R	Ghuznavi, THE HON'BLE ALHADJ SIR ABDELKERIM ABU AHMED KHAN, KT., M.L.C., Zemindar of Dilduar. 30, Theatre Road, Calcutta (and) North House, Dilduar, Mymensingh.
1-4-29	A	Ginwala, SIR PADAMJI, KT., Late President, Indian Tariff Board Europe.
5-3-28	R	Goopu, DWIJENDRA NATH, Medical Practitioner and Landholder. 5, Middleton Street, Calcutta.
7-9-10	N	*Gravelly, FREDERIC HENRY, D.S.C., F.A.S.B. Museum House, Egmore, Madras.
5-12-00	L	Grieve, JAMES WYNDHAM ALLEYNE. c/o Messrs. Coutts & Co., 440, Strand, London, W.C. 2.
4-2-25	R	Guha, B. S., M.A., PH.D. (HARVARD). Indian Museum, Calcutta.
6-12-26	R	Guha, THE HON'BLE MR. JUSTICE SURENDRANATH, RAI BAHADUR, Judge, High Court. 16, Lansdowne Road, Calcutta.
7-5-28	R	Gupta, J. N., M.B.E., C.I.E., I.C.S., Late Member, Board of Revenue, Government of Bengal. 5, Riverside Barrack-pore.
5-3-19	N	Gupta, SIVAPRASAD. Seva Upavana, Benares City.
5 8-15	N	Gurner, CYRIL WALTER, B.A. (OXON), I.C.S., Magistrate and Collector. Barisal.
6-3-01	N	Habib-ur-RAHMAN, THE HON'BLE NAWAB SADR YAR JUNG, MAULANA, Rais, Bhikanpur. Habibganj, District Aligarh.
6-1-30	R	Haldar, SUHDINDRA KUMAR, M.A., I.C.S., Commissioner of Excise and Salt, Bengal. 241, Lower Circular Road, Calcutta.
6-1-30	F	Hamilton, SIR DANIEL MACKINNON, KT., Retired Partner, Messrs. Mackinnon Mackenzie & Co. Balmacara, Rosshire, Scotland.
2-4-24	R	Haq, M. MAHFUZ-UL, M.A., Lecturer, Presidency College. 13/1, Collin Lane, Calcutta.
1-5-12	R	Harley, ALEXANDER HAMILTON, M.A., I.E.S., Principal, Islamia College. 19, Wellesley Square, Calcutta.
1-2-26	F	Harris, H. G., c/o Messrs. Martin & Harris, Ltd., Rowlette Buildings. 17, Prinsep Street, Calcutta.
2-4-28	R	Harris, LAWRENCE ERNEST, Engineer, Manager for India, Messrs. Sulzker Brothers. 4, Lyons Range, Calcutta.
4-4-27	N	Helland, BERNHARD ALVIN, B.A., Augsburg College (U.S.A.), B.D., Augsburg Seminary (U.S.A.), M.A., University of Minnesota (U.S.A.), Missionary, Principal, Kaerabani Boys' Middle English and Guru Training School. Kaerabani, via Dumka, Santal Parganas.
5-11-19	N	Hemraj, MANYABARA RAJ GURU, C.I.E., PANDITJI. Dhokatele, Nepal.
3-2-30	F	Henderson, ALEXANDER GAVIN, B.A. (OXON). Buscot Park, Faringdon, Berks, England.

Date of Election		
3-12-24	R	Hendry, C. A. JOHN , F.R.G.S., M.I.S.E., A.M.I.M.E., M.I.E. M.M.I.N.I., <i>Consulting Mechanical Engineer, Messrs. Martin & Co.</i> 12, Mission Row, Calcutta.
6-8-28	R	Heron, A. M. , D.S.C. (EDIN.), F.G.S., F.R.G.S., F.R.S.E., <i>Superintendent, Geological Survey of India.</i> Indian Museum, Calcutta.
7-6-11	R	*Hidāyat Hossain, MUHAMMAD , SHAMS 'UL-'ULAMA, KHAN BAHADUR, PH.D., F.A.S.B. 96/2c, Collin Street, Calcutta.
1-2-26	R	Hingston, H. , Lt.-Col., I.M.S., M.D., <i>Surgeon to H.E. the Governor of Bengal.</i> 5, Wellesley Place, Calcutta.
4-6-28	N	Hobart, ROBERT CHARLES , I.C.S., <i>Collector.</i> Bareilly, U.P.
1-4-25	R	Hobbs, HENRY , <i>Merchant.</i> 9, Old Court House Street, Calcutta.
1-2-32	R	Holme, JAMES WILLIAM , M.A., I.E.S. (RETD.), <i>Principal, La Martinière.</i> 11, Loudon Street, Calcutta.
7-3-27	N	Hopkinson, ARTHUR JOHN , I.C.S. Kahalla, Nathiagali, N.-W.F.P.
2-11-21	L	*Hora, SUNDER LAL , D.S.C., F.Z.S., F.R.S.E., F.A.S.B. <i>Zoological Survey of India, Indian Museum, Calcutta.</i>
2-7-28	R	Hossain, NAWAB MUSHARRUF , KHAN BAHADUR, M.L.C. 42-A, Hazra Road, Calcutta.
6-6-23	L	*Howard, A. , C.I.E., M.A., F.A.S.B., <i>Late Director, Institute of Plant Industry, Indore, and Agricultural Adviser to States in Central India.</i> British Science Guild, 6, John Street, Adelphi, London, W.C. 2.
4-1-26	R	Hubert, OTTO , <i>Chancellor to the German Consulate General.</i> 3, Lansdowne Road, Calcutta.
7-3-32	N	Hughes, ARTHUR , B.A. (MANCHESTER), <i>Indian Civil Service. Additional District Magistrate.</i> Dacca.
6-6-23	N	*Hutton, J. H. , C.I.E., I.C.S., M.A., D.S.C., F.A.S.B., <i>Census Commissioner of India.</i> Chelmsford Club, New Delhi.
7-2-27	N	Imam, ABU MOHAMMAD SYED HASSAN , <i>Zemindar.</i> Hasnain Manzil, Gaya, E.I.R. [England.]
1-2-11	L	Insch, JAMES . 18, Beechwood Avenue, Boscombe, Hants,
5-11-28	R	Ishaque, MOHAMMAD , M.A., B.S.C., M.R.A.S., <i>Lecturer, Calcutta University.</i> 6, Hospital Street, P.O. Dhurumtollah, Calcutta.
5-12-23	R	Jackson, P. S. 4, Temple Chambers, 6, Old Post Office Street, Calcutta
6-6-27	L	Jain, BALDEODAS , <i>Merchant and Banker.</i> 21, Armenian Street, Calcutta.
2-2-21	R	Jain, CHHOTE LAL , M.R.A.S. 25, Central Avenue North, Calcutta.
6-1-30	N	Jain, NIRMAL KUMAR . Devashrama, Arrah.
6-8-28	N	Jaitly, P. L. , <i>Electrical Engineer, Merchant.</i> 15, Canning Road, Allahabad.
1-11-26	N	Jameson, THOMAS BLANDFORD , MAJOR, M.C., M.A. (CANTAB.), I.C.S., <i>District and Sessions Judge.</i> Hooghly.
4-11-29	F	Jarvis, ROBERT Y. The Department of State, Washington, District Columbia, U.S.A.
6-5-25	R	Jatia, SIR ONKAR MULL , KT., O.B.E., <i>Merchant.</i> 2, Rupchand Roy Street, Calcutta.
4-2-29	N	Jenkins, WALTER ALLEN , D.S.C. (SHEFFIELD), I.E.S., <i>Principal, Rajshahi College.</i> Rajshahi.
5-4-26	R	Jones, THORNTON , <i>Solicitor.</i> c/o Messrs. Morgan & Co., 1, Hastings Street, Calcutta.
2-4-24	R	Judah, N. J. , M.B., CH.B., F.R.C.S. 43, Chowringhee, Calcutta.

Date of Election.		
1-11-11	L	Kamaluddin AHMAD , SHAMS-UL-'ULAMĀ, M.A., I.E.S., <i>Inspector of Schools, Presidency Division.</i> P. 17, New Park Street, Calcutta.
5-3-24	R	Kanjilal , M. N., M.A. (CAL.), LL.B. (CANTAB.), <i>Barrister-at-Law.</i> 17, Loudon Street, Calcutta.
5-11-24	R	Kapur , SHAMLAL, <i>Import and Banking.</i> 84, Khengrapatty, Calcutta.
1-2-26	N	Kashyap , SHIV RAM, RAI BAHADUR, B.A., M.SC., I.E.S., <i>Professor of Botany.</i> Government College, Lahore.
10-6-12	R	Kazim Shirazi , AGA MOHAMMED. 16A, Ahiripukur 1st Lane, Ballygunge, Calcutta.
4-5-10	L	*Kemp , STANLEY W., B.A., D.SC., F.R.S., F.A.S.B. 'Discovery Expedition,' 52, Queen Anne Chambers, Dean Farrar Street, London, S.W. 1.
2-5-30	N	Kenny , DICK EDWARD COURTENAY, LT.-COL., I.A., <i>Deputy Commissioner, Taray.</i> Burma.
6-2-28	N	Kewal , GANDA SINGH, PH. B.SC., I.O.G.E., F.R.G.S. (LONDON), F.T.S., F.I.A.SC. (LONDON), <i>Research Scholar in Sikh History.</i> Khalsa College, Amritsar.
1-2-26	R	Khambata , R. B., M.R.C.S., L.R.C.P., D.P.H., <i>Director of Public Health, Bengal.</i> 2-B, Camac Street, Calcutta.
2-12-29	N	Khan , MATIUR RAHMAN, <i>Khas Mahal Circle Officer.</i> 27, Panchbhaighat, Dacca.
3-12-24	R	Khan , REZAUR RAHMAN, M.A., B.L., <i>Deputy President, Bengal Legislative Council.</i> 28, Convent Road, Entally, Calcutta.
6-5-25	R	Khanna , VINAYEK LAL, M.R.A.S., <i>Merchant.</i> 137D, Balaram Dey Street, Beadon Street P.O., Calcutta.
2-8-26	R	Khettry , BENIMADHO, <i>Proprietor, Messrs. Gouri Shanker Khettry, Landholders, Bankers and Merchants.</i> 15, Paggiyapatti, Barabazar, Calcutta.
2-11-25	F	Kimura , R. (Ko-Shi), <i>Principal, College Department of Risho University.</i> Osaka Machi, Tokyo, Japan.
7-7-20	R	*Knowles , ROBERT, M.R.C.S., L.R.C.P., B.A. (CANTAB.), F.A.S.B., LT.-COL., I.M.S. 93, Park Street, Calcutta.
6-5-25	F	Koester , DR. HANS, <i>Legations Sekretär.</i> Auswaertiges Amt, Abteilung W., Berlin W. 8, Wilhelmstrasse 75.
3-2-30	A	Korni , MICHAEL ALEXANDROWITZ (DR.), <i>Architect and Engineer, Messrs. Bird & Co.</i> 53, Chowringhee Road, Calcutta.
2-3-31	N	Kothari , N. L., <i>Colliery Manager, Agent, Khas Jharia Colliery.</i> Jharia, Manbhum.
1-3-26	R	Kramrisch , STELLA (MRS.), PH.D., <i>Lecturer in Ancient Indian History (Fine Arts), Calcutta University.</i> 57, Ballygunge Circular Road, Calcutta.
2-4-28	R	Kumar , KUMAR KRISHNA, M.A., B.L., <i>Zemindar and Banker.</i> 31 & 31-1, Burtolla Street, Calcutta.
4-11-29	N	Kurup , POKIARATH CHENCHERI KRISHNA, L.M.P., <i>Licentiate of the College of Physicians and Surgeons of Bombay, Medical Officer.</i> Taliparamba P.O., North Malabar.
7-3-23	R	Labey , GEORGE THOMAS, M.C., <i>Bengal Pilot Service.</i> United Service Club, Calcutta.
1-4-25	N	Laden La , SONAM WANGFEL, SARDAR BAHADUR, C.B.E., F.R.G.S., <i>Hony. A.D.C. to H.E. the Governor of Bengal, Chief of Police, Lhasa, Tibet.</i> 'Yangang Villa', Darjeeling.
3-6-25	N	Lal , BUDH BEHARI, RAI SAHEB, B.A., PH.D., <i>Head Master.</i> 48B, New Mandi, Muzzaffarnagar.

Date of Election		
6-3-89	L	* La Touche , THOMAS HENRY DIGGES, M.A., F.G.S., F.A.S.B. 230, Hills Road, Cambridge, England.
5-8-14	R	Law , BIMALA CHARAN, M.A., B.L., PH.D., F.R.HIST.S. 43, Kailas Bose Street, Calcutta.
1-2-11	R	Law , NARENDRA NATH, M.A., B.L., P.R.S., PH.D. 96, Amherst Street, Calcutta.
1-7-14	R	Law , SATYA CHURN, M.A., B.L., PH.D., F.Z.S., M.B.O.U. 50, Kailas Bose Street, Calcutta.
7-6-26	R	Lemmon , RICHARD DENNIS, <i>Merchant</i> . c/o Messrs. Martin & Harris Ltd., 17, Prinsep Street, Calcutta.
3-5-11	R	Lomax , C. E., M.A. La Martinière, Calcutta.
1-6-31	R	Lort-Williams , THE HON'BLE MR. JUSTICE JOHN, K.C., <i>Barrister-at-Law, Judge, High Court</i> . 227/1, Lower Circular Road, Calcutta.
4-3-29	R	Lunan , A. G., <i>Partner, Messrs. Bathgate & Co.</i> 19, Old Court House Street, Calcutta.
5-7-26	A	Lyne , HOWARD WILLIAM, I.C.S. Khulna, E.B.R.
2-8-05	L	* McCay , DAVID, LT.-COL., I.M.S., M.D., B.CH., B.A.O., M.R.C.P., F.A.S.B. c/o The Standard Bank of S. Africa, Cradock, Cape Province, S. Africa.
1-3-26	A	McKay , JOHN WALLACE, <i>Delegate, Chilean Nitrate Committee (Indian Delegation)</i> . 7, Hare Street, Calcutta.
11-1-93	L	* MacLagan , SIR EDWARD DOUGLAS, K.C.S.I., K.C.I.E., F.A.S.B. 188, West Hill, Putney, London, S.W. 15.
5-3-24	R	McPherson , JAMES. c/o Messrs. Begg Dunlop & Co., Ltd., 2, Hare Street, Calcutta.
7-6-16	N	Mahajan , SURYA PRASAD. Murarpur, Gaya.
3-3-20	R	Mahalanobis , P. C., M.A., B.SC., I.E.S., <i>Professor, Presidency College</i> . 210, Cornwallis Street, Calcutta.
1-3-11	F	Mahtab , SIR BIJAY CHAND, K.C.S.I., I.O.M., MAHARAJA-DHIRAJA BAHADUR OF BURDWAN. 6, Alipur Lane, Calcutta. (England.)
3-2-30	N	Mahtab , UDAY CHAND, B.A., <i>Maharaj Kumar of Burdwan</i> . The Palace, Burdwan
6-2-24	R	Mahindra , K. C., B.A. (CANTAB.). Messrs Martin & Co., 12, Mission Row, Calcutta.
7-7-30	N	Mahudavala , JEHANGIR J., B.COM. (BIRMINGHAM), <i>Insurance Representative</i> . c/o J. C. Mahudavala, Esq., Fort, Broach, B.B. & C.I.Ry.
7-8-18	R	Maitra , JATINDRA NATH, <i>Physician and Surgeon</i> . 68/A, Beadon Street, Calcutta.
2-8-26	N	Majumdar , DHIRENDRA NATH, M.A., <i>Lecturer in Anthropology</i> . University of Lucknow, Lucknow.
2-2-16	R	Majumdar , NARENDRA KUMAR, M.A., <i>Professor, Calcutta University</i> . 3, Government Place, West, Calcutta.
4-6-13	N	Majumdar , RAMESH CHANDRA, M.A., PH.D., <i>Professor, Dacca University</i> . Ramna, Dacca.
5-5-30	N	Mallam , G. L., CAPTAIN, I.A., <i>Census Superintendent</i> . Peshawar, N.-W.F.P.
7-5-28	R	Mallik , THE HON'BLE MR. JUSTICE SATYENDRA CHANDRA, M.A., I.C.S., <i>Judge, High Court</i> . 7-3, Burdwan Road, Alipur, Calcutta.
4-11-29	N	Mallia , BANTWAL GANAPATHY, MAJOR, I.M.S., F.R.C.S.E. Civil Surgeon. Chittagong.
4-3-29	R	Mani , M. S. Entomology Section, Indian Museum, Calcutta.
6-2-18	L	* Manen , JOHAN VAN, C.I.E., F.A.S.B. 6, Temple Chambers, 6, Old Post Office Street, Calcutta.

Date of Election.		
5-6-01	F	Mann, HAROLD HART, D.SC., M.SC., F.I.C., F.I.S. Woburn Experimental Station, Aspley Guise, Bedfordshire, England.
6-1-30	N	Martin, M. F. C., CAPT., R.F. Office of C.R.E., Waziristan District, Dera Ismail Khan.
5-3-24	R	Martin, T. LESLIE, M.A. (CANTAB.). 12, Mission Row, Calcutta.
5-5-30	R	Matthias, OWEN GARDINER, Managing Director, Messrs. Smith Stanistreet & Co., Ltd. Stanistreet House, 18, Convent Road, Entally, Calcutta.
2-1-28	N	Mello, FROILANO de, COLONEL, Director-General of Medical Services in Portuguese India, Professor of Parasitology. Nova Gôa.
5-11-84	L	*Middlemiss, CHARLES STEWART, C.I.E., F.R.S., B.A., F.G.S., F.A.S.B. Aviemore, Crowborough, Sussex, England.
1-2-26	N	*Mills, JAMES PHILIP, I.C.S., M.A. (OXON), J.P., F.A.S.B., Deputy Commissioner, Kohima. Naga Hills, Assam.
5-6-12	N	Misra, CHAMPARAM, B.A., Dy. Director of Industries. Cawnpore, U.P.
2-4-24	R	Mitra, J. C., M.A., B.L., Retired Accountant-General, Bengal. 1, Abinash Mitter Lane, Calcutta.
4-3-29	R	Mitra, JAMINI MOHAN, RAI BAHADUR, M.A., Late Registrar, Co-operative Societies, Bengal. 24, Ray Street, Bhawanipore, Calcutta.
6-6-06	R	Mitra, KUMAR MANMATHA NATH. 34, Shampukur Street, Calcutta.
4-11-29	R	Mitra, MATHURA NATH, B.A., Solicitor. 12-1, Old Post Office Street, Calcutta.
5-3-24	N	Mitter, THE HON'BLE SIR B. L., KT, M.A., B.L., Barrister-at-Law, Law Member, Viceroy's Council. New Delhi.
5-3-24	R	Mitter, THE HON'BLE MR. JUSTICE DWARKANATH, M.A., D.L., Judge, High Court. 12, Theatre Road, Calcutta.
4-3-29	R	Mitter, HIRANYA KUMAR, Landholder. 1, Jhamapukur Lane, Amherst Street P.O., Calcutta.
5-4-26	R	Mitter, KHAGENDRA NATH, RAI BAHADUR M.A., Professor, Presidency College (Retired). 72/1, Bondel Road, Ballygunge, Calcutta.
5-3-24	R	Mitter, THE HON'BLE SIR PROVASH CHANDRA, KT., C.I.E., M.L.C. 34/1, Elgin Road, Calcutta.
1-11-26	R	Modi, JAL R. K., B.A. 4, Camac Street, Calcutta.
7-5-28	N	Moledina, MOHAMED HASHIMI, Landlord and Merchant. 30, Main Street, Camp Poona.
6-8-24	N	Moloney, WILLIAM J., General Manager of Reuter's for the East. c/o 26/7, Dalhousie Square, Calcutta.
2-4-28	R	Mookerjee, BHABADEB, Merchant. 48, Barrackpore Trunk Road, P.O. Baranagore.
1-3-26	R	Mookerjee, ADITYA NATH, M.A., PH.D., Late Principal, Sanskrit College. 10/B, Mohun Lal Street, Shambazar, Calcutta.
5-11-24	R	Mookerjee, 'B. N., B.A. (CANTAB.), Engineer. 12, Mission Row, Calcutta.
3-12-24	R	Mookerjee, J. N., Civil Engineer. 12, Mission Row, Calcutta.
3-5-98	L	*Mookerjee, SIR RAJENDRA NATH, K.C.I.E., K.C.V.O., HON. F.A.S.B. 7, Harrington Street, Calcutta.
2-7-24	R	Mookerjee, SYAMA PRASAD, M.A., B.L., Vakil, High Court, Fellow of the University of Calcutta. 77, Russa Road North, Calcutta.

Date of Election.		
2-5-32	F	Muhammad, MIRZA, KHAN BAHADUR, C.I.E., LL.B., M.R.A.S., <i>Advocate</i> . Strand Road, Basrah.
2-2-21	R	Mukerjee, SUBODH CHANDRA, SHASTRI, M.A., Docteur-es-Lettres (Paris). 3/1A, Raja Rajabullav Street, Calcutta.
5-12-27	R	Mukerjee, SUSIL KUMAR, F.R.C.S. (EDIN.), D.O. (OXON.), D.O.M.S. (LOND.), <i>Ophthalmic Surgeon</i> , Carmichael Medical College Hospitals. 1/1, Wood Street, Calcutta.
6-2-28	R	Mukerji, THE HON'BLE MR. JUSTICE MANMATHA NATH, M.A., B.L., <i>Judge, High Court</i> . 8/1, Harsi Street, Calcutta.
5-3-24	R	Mukerji, S., M.A., B.L., <i>Vakil and Zemindar</i> . 7, Old Ballygunge Road, Calcutta.
3-3-30	N	Mukharji, ISAN CHANDRA, Rai Bahadur, Tazimi Sardar and Retired Member of Jaipur Council. Jaipur, Rajputana.
7-11-27	N	Mukherjee, DEVAPROSANNA, M.A., B.L., <i>Zemindar</i> . Burdwan.
7-2-27	R	Mukherjee, HARENDRA NATH, B.S.C., M.B. (CAL.), D.I.C. (LOND.), <i>Medical Practitioner</i> . Biochemical Department, Carmichael Medical College, Belgachia, Calcutta.
2-8-26	R	Mukherjee, JNANENDRA NATH, D.S.C. (LONDON), F.C.S. (LONDON), <i>Fellow of the Indian Chemical Society; Guruprasad Professor of Chemistry, University of Calcutta</i> . 92, Upper Circular Road, Calcutta.
5-7-26	R	Mukhopadhyaya, PRABHAT KUMAR, M.A., <i>Research Assistant, Calcutta University</i> . 27, Govinda Ghosal Lane, Bhawanipur, Calcutta.
2-2-21	R	Mukhopadhyaya, RAMAPRASAD, M.A., B.L. 77, Russa Road North, Bhawanipore, Calcutta.
2-4-28	R	Mullick, KARTICK CHURN. KUMAR, <i>Director, Raja D. N. Mullick & Sons, Ltd.</i> Colootola Rajbati, Chittaranjan Avenue, Calcutta.
4-3-29	R	Mullick, PRAMATHA NATH, RAI BAHADUR, <i>Zemindar and Landholder</i> . 129, Cornwallis Street, Calcutta.
7-5-28	N	Murray, EUGENE FLORIAN OLIPHANT, A.I.M.M., F.G.S., <i>Mining Geologist and Engineer</i> . Tatanagar, B.N.Ry.
4-1-26	N	Murray, HOWARD, C.I.E., LT.-COL., INDIAN ARMY, <i>Deputy Financial Adviser</i> . Flashman's Hotel, Rawalpindi.
3-6-25	N	Musa, MUHAMMAD, MOULVI, KHAN BAHADUR, M.A., <i>Principal, Islamic Intermediate College</i> . Dacca.
1-6-21	N	Muzammil-Ullah Khan, THE HON'BLE NAWAB, MOHD., KHAN BAHADUR, K.C.I.E., K.B., <i>Rais</i> . Bhikanpur, Dist. Aligarh, U.P.
7-3-06	N	Nahar, PURAN CHAND, RAI BAHADUR, <i>Solicitor</i> . c/o 48, Indian Mirror Street, Calcutta.
5-12-27	L	Namgyal, H.H. MAHARAJA SIR TASHI, K.C.I.E., <i>Maharaja of Sikkim</i> . Gangtok, Sikkim.
6-6-27	N	Nandi, MAHARAJA SRIS CHANDRA, M.A., M.L.C., <i>Zemindar</i> . Kasimbazar Rajbari, Kasimbazar, Murshidabad.
4-2-29	N	Narain, HIRDE, M.A., B.T., <i>Professor of History, Morris College</i> . Nagpur, C.P.
4-6-28	N	Narasimham, YECHURI, M.A., <i>Dewan, Vizianagram Somsathanam</i> . Vizianagram.
5-3-28	R	Neogi, PANCHANAN, M.A., PH.D., I.E.S., <i>Professor of Chemistry, Presidency College</i> . 21, Kundu Lane, Belgachia, Calcutta.
3-11-30	R	Newman, CARL DAMIEN, M.B.B.S., D.T.M. & H., <i>District Medical Officer, E.B.Ry.</i> 1/1, Old Ballygunge Road, Calcutta.

Date of Election		
3-12-24	N	Newman, CHAS. F., F.R.G.S., M.C.P. Kutchia Bui ^o galow, Bhopal, C.I.
6-8-24	R	Nyss, WM. B. S., <i>Late Superintendent, Excise and Salt.</i> 175B, Lower Circular Road, Calcutta.
7-4-15	F	Ohtani, COUNT KOZUI. San-ya-so, Edomachi, Fushimi ⁱ , Kyoto, Japan.
5-11-28	R	Olpadvala, E. S. 52, Chowringhee, Calcutta.
2-6-30	R	Oyevaar, J. J., <i>Vice-Consul for the Netherlands.</i> c/o The Java Bengal Line, E-1, Clive Buildings, Clive Street (Post Box No. 71), Calcutta
5-12-23	N	Pande, SHIVA BANDHAN, <i>Retired Tahsildar and Zemindar.</i> Ramaipatti, Mirzapur, U.P.
5-4-26	R	Parker, RICHARD HENRY, I.C.S., <i>Late Scholar of St. John's College, Oxford.</i> District and Sessions Judge, Alipore, Calcutta.
4-11-29	F	Parry, NEVILL EDWARD, I.C.S. (RETD.). 12, Howell Road, Exeter, England.
5-11-19	A	*Pascoe, SIR EDWIN HALL, KT., M.A., SC.D. (CANTAB.), D.SC. (LOND.), F.G.S., F.A.S.B., <i>Late Director, Geological Survey of India.</i> England.
6-5-29	N	Pawsey, C. R., <i>Indian Civil Service.</i> Mokokchung, Naga Hills, Assam.
6-6-88	L	Pennell, AUBRAY PERCIVAL, B.A., <i>Barrister-at-Law.</i> Lamb's Building, Temple, London, E.C. 4.
1-4-25	R	Perier, FERDINAND, S.J., <i>Most Reverend the Archbishop of Calcutta.</i> 32, Park Street, Calcutta.
7-4-30	N	Pessein, REV. J. F., <i>Catholic Missionary, Superior of the Catholic Missionary Sanatorium,</i> Wellington, Nilgiris.
3-2-30	N	Pettigrew, REV. WILLIAM, <i>Missionary.</i> American Baptist Foreign Mission Society, P.O. Kangpokpi, Manipur, Assam.
1-6-04	A	*Pilgrim, GUY E., D.SC., F.G.S., F.A.S.B. <i>Late of the Geological Survey of India, Indian Museum.</i> England.
4-8-30	R	Popper, STEPHEN W., <i>Merchant.</i> c/o Messrs. Haverro Trading Co., Ltd., Commercial House 15, Clive Street, Calcutta.
6-4-31	N	Prasad, SHARDA. c/o Messrs. Gopinath Lal Behari, Satna.
3-4-18	L	*Prashad, BAINI, D.SC., F.Z.S., F.R.S.E., F.A.S.B. <i>Zoological Survey of India, Indian Museum, Calcutta.</i>
3-8-25	R	Pruthi, HEM SINGH, M.SC. (PUNJAB), PH.D. (LONDON), <i>Assistant Superintendent, Zoological Survey of India.</i> Indian Museum, Calcutta.
2-1-28	N	Puri, I. M., PH.D. (CANTAB.), M.SC. (PUNJAB). <i>Central Research Institute, Kasauli, Punjab.</i>
3-12-24	R	Pushong, E. S., M.D., L.S.A., <i>Medical Practitioner.</i> 1, Chapel Road, Hastings, Calcutta.
3-11-30	R	Rahman, SHAH KALIMUR, M.A., <i>Lecturer in Arabic and Persian, Calcutta University.</i> 51, Baitakhana Road, Calcutta.
6-2-28	N	Rai, LAKSHMI NARAIN, L.M.S., <i>Medical Officer.</i> In-charge, King Edward VII Hospital, Benares.
1-2-22	N	*Raman, SIR CHANDRASEKHARA VENKATA, KT., M.A., D.SC., F.R.S., F.A.S.B. <i>Indian Institute of Science, Bangalore.</i>
1-11-26	N	Ramanujaswami, P. V., M.A., <i>Principal.</i> Maharaja's Sanskrit College, Vizianagram.

Date of Election.		
7-3-27	R	Rankin , THE HON'BLE SIR GEORGE, KT., <i>Chief Justice of Bengal</i> . 9, Camac Street, Calcutta.
1-2-26	N	Rao , Y. RAMACHANDRA, RAO SAHIB, M.A., F.E.S., <i>Deputy Locust Research Entomologist</i> . McLeod Road, Karachi.
4-8-30	N	Raparia , TARA CHAND, B.A., <i>Business Manager</i> . c/o Messrs. Bansidhar Sumerchand & Co., Belangunj, Agra, U.P.
2-7-24	N	Ray , ABINASH CHANDRA, B.A. R.M.H.E. School, P.O. Baidyabati.
7-9-21	R	Ray , HEM CHANDRA, M.A., PH.D. (LONDON). P.39A, Manicktollah Spur, Calcutta.
5-1-21	N	Ray , JAGADISNATH, MAHARAJA, <i>Maharaja of Dinajpore</i> . Dinajpore.
5-3-90	R	*Ray , SIR PROFULLA CHANDRA, KT., C.I.E., D.SC., F.A.S.B. University College of Science, 92, Upper Circular Road, Calcutta.
5-11-28	L	Reinhart , WERNER, <i>Merchant</i> c/o Messrs. Volkart Bros., Rychenberg, Winterthur, Switzerland.
6-2-28	A	Reneman , NICO. 52/1, Ballygunge Circular Road, Calcutta.
3-4-24	F	Richards , F. J., I.C.S. 6, Lexham Gardens, London, W. 8.
1 4-29	N	Rizvi , SYED HAMID HUSAIN, <i>Excise Sub-Inspector</i> . Mohalla Sanechri, Near Musjid of Munshi Sk Ghassu, Saugor, C.P.
3-12-24	L	Roerich , (GEORGE NICHOLAS, M.A., M.R.A.S., <i>Orientalist</i> . 310, Riverside Drive, New York, U.S.A. (Naggar, Kulu, Punjab).
2-7-28	L	Roerich , NICHOLAS, <i>Professor, Honorary President, Master Institute of United Arts, New York, U.S.A., Artist Painter</i> . 310, Riverside Drive, New York, U.S.A.
3-12-24	N	Rogers , T. E., <i>Tea Planter</i> . The Tyroom Tea Co., Ltd., Kharikatia, Assam.
7-5-24	A	Rose , G. F., <i>Director, Messrs. Andrew Yule & Co., Ltd.</i> 8, Clive Row, Calcutta.
4-12-01	F	*Ross , SIR EDWARD DENISON, KT., C.I.E., PH.D., F.A.S.B., <i>Director, School of Oriental Studies</i> . Finsbury Circus, London, E.C. 2.
6-12-26	R	Roy , THE HON'BLE MR. JUSTICE A. K., <i>Barrister-at-Law, Judge, High Court</i> . 3, Upper Wood Street. P.O. Theatre Road, Calcutta.
1-12-30	N	Roy , KUMAR KAMALRANJAN, B.A., <i>Zemindar</i> . Kashim-bazar Post, Dt. Murshidabad.
2-4-28	N	Roy , SUHRID KUMAR, B.SC., PH.D., F.G.S., <i>Professor of Geology, Indian School of Mines</i> . Dhanbad.
6-8-24	N	Roy-Chowdhury , BRAJENDRA KISHORE, <i>Zemindar</i> . (53, Sukea Street, Calcutta.) Gauripur, Mymensingh.
1-2-26	N	Ruthnaswamy , M., M.A., <i>Barrister-at-Law, Principal, Law College</i> Esplanade, Madras.
7-5-28	N	*Saha , MEGH NAD, D SC., F.R.S., F.A.S.B., <i>Professor of Physics, University of Allahabad</i> . Katra, Allahabad.
3-11-30	N	Sahaya , SHYAMNANDAN, B.A., <i>Agent, New India Assurance Co., Ltd., Bombay, and Agent, The National Banking and Loan Co., Ltd., Calcutta</i> . Bank Road, Patna.
5-11-24	N	*Sahni , B., M.A., SC.D. (CANTAB.), D.SC., F.G.S., F.A.S.B., <i>Professor of Botany</i> . The University, Lucknow.
6-5-29	R	Sanyal , SRISH CHANDRA, <i>Astronomer</i> . 25, Rani Branch Road, P.O. Cossipur, Calcutta.
3-12-24	R	Sarkar , C. K., C.E., <i>Engineer and Architect</i> . 10, Hastings Street, Calcutta.

Date of Election.		
3-3-09	R	Sarvadhikary, Sir DEVAPRASAD, KT., C.I.E., O.B.E., C.B.E., M.A., B.L., F.C.U., LL.D. (ABERDEEN), LL.D. (ST. ANDREWS), SURIRATNA, VIDYARATNAKAR, JNANA-SINDHU. 20, Suri Lane, Entally, Calcutta.
6-5-29	N	Sastri, D. S. BALASUBRAMANIYA, Bhashachatushtaya Pandita (Passed Nyaya Mimansa Siromoni Class in 1913), Telugu Pandit, Borstal School, Tanjore. Borstal Teachers' Lines, Tanjore.
1-4-25	R	Sen, BENOY CHANDRA, M.A., Professor of History, City College. 'Rupeswar', Diamond Harbour Road, Behala.
3-12-24	R	Sen, H. K., M.A., D.SC. (LONDON), D.I.C., Professor of Chemistry, University College of Science. 92, Upper Circular Road, Calcutta.
5-12-23	L	Sen, LAKSHMAN, H.H. RAJA OF SUKET. Suket State, Punjab.
1-4-29	R	Sen-Gupta, NARES CHANDRA, M.A., D.L., Advocate, High Court. 36, Girish Mukherjee Road, Bhawanipore, Calcutta.
5-4-26	R	Senior-White, RONALD, F.E.S., F.R.S.T.M. & H., Malarialogist. B.N. Ry. House, Kidderpore, Calcutta.
1-12-97	R	Seth, MESROB JACOB, M.R.A.S., M.S.A., F.R.S.A., Examiner in Classical Armenian to the Calcutta University. 9, Marsden Street, Upper Flat, Calcutta.
5-7-11	L	*Sewell, ROBERT BERESFORD SEYMOUR, M.A., SC.D. (CANTAB.), M.R.C.S., L.R.C.P., F.Z.S., F.I.S., F.A.S.B., LT.-COL., I.M.S., Late Director, Zoological Survey of India. England.
2-11-25	N	Sharif, MOHAMMAD, D.SC., F.R.M.S., I.L.S., Lecturer in Zoology. Muslim University, Aligarh.
6-5-29	N	Sharma, SRI RAM, M.A., M.R.A.S., M.A.O.S., Professor of History. D.A.V. College, Lahore.
2-5-23	N	Shebbeare, E. O., Conservator of Forests, Darjeeling.
6-1-09	N	Shirreff, ALEXANDER GRIERSON, B.A., I.C.S. Sitapur, U.P.
4-1-26	R	Shortt, H. E., LT.-COL., I.M.S. Pasteur Institute of India, Kasauli, Punjab.
5-1-31	N	Shukla, JAGANNATH PRASAD. Trans Gointi Outran Road, near Badshahnagar, Railway Station, Lucknow.
6-2-28	L	Shumsher JUNG BAHADUR RANA, SIR KAISER, K.B.E., SUPRADIPTA MANYAVARA, LIEUT.-GENERAL, Nepalese Army. Kaiser Mahal, Kathmandu, Nepal.
5-2-02	N	Shyam Lal, LALA, M.A., LL.B. Nawabganj, Cawnpore, U.P.
1-4-25	R	Sidiq, SYED MOHAMMAD, SHIFA-UL-MULK, Unani Physician. 11, Harin Bari 1st Lane, Calcutta.
4-11-29	R	Siddiqi, MOHAMMAD ZUBAYR, Sir Asutosh Professor of Islamic Culture, Calcutta University. P.274, Bright Street, Park Circus, Calcutta.
5-3-13	L	*Simonsen, JOHN LIONEL, D.SC., F.I.C., F.A.S.B. University College of North Wales, Bangor, North Wales.
6-2-18	N	Singh, MANYABARA BADA KAJI MARICHI MAN, C.I.E. 38, Khichapokhari, Kathmandu, Nepal.
4-11-29	F	Singh, JAIPAL, M.A. (Modern Greats), St. John's College, Oxford University. Achinota College, Accra, West Africa.
5-9-12	R	Singhi, BAHADUR SINGH. (Azimganj, Murshidabad.) 116, Lower Circular Road, Calcutta
3-4-18	N	Sinha, BHUPENDRA NARAYAN, RAJA BAHADUR, B.A. Nashipur Rajbati, Nashipur.
7-5-28	F	Sinha, LORD, OF RAIPUR. Queen Anne Mansions, St. James Park, London.

Date of Election		
6-6-27	N	Sinha , SHEONANDAN PRASAD, M.B., <i>Assistant Surgeon</i> . Chatra, Dt Hazaribagh.
6-2-28	R	Sinha , SUHRID CHANDRA, KUMAR, M.SC. 15/1/1, Ramakanto Bose Street, Bagh Bazar, Calcutta.
4-1-26	N	Sinton , J. A., O.B.E., LT.-COL., I.M.S., V.C., <i>Officer-in-Charge, Malaria Bureau</i> . Central Research Institute, Kasauli.
5-7-16	L	Sircar , GANAPATI, VIDYARATNA. 69, Beliaghatta Main Road, Calcutta.
5-3-24	R	Sircar , SIR NRIPENDRA NATH, KT., M.A., B.L., <i>Barrister-at-Law, Advocate-General, Bengal</i> . 36/1, Elgin Road, Calcutta.
5-3-24	R	Sircar , SIR NIL RATAN, KT., M.A., M.D., <i>Physician</i> . 7, Short Street, Calcutta.
7-11-32	N	Sitling , G. T. The Ong Press, Kalimpong, D.H. Ry.
2-6-20	A	Skinner , S. A., <i>Engineer and Director, Messrs. Jessop & Co., Ltd.</i> 93, Clive Street, Calcutta.
1-3-26	R	Snaith , JOHN FRANK. <i>Managing Director, Messrs. Hamilton & Co.</i> 8, Old Court House Street, Calcutta.
2-8-26	N	Sohoni , VISHVANATH VISHNU, B.A., B.SC., <i>Meteorologist</i> . Meteorological Office, Poona 5.
5-8-29	R	Sommerfeld , ALFRED, <i>Merchant</i> . 5, Ballygunge Park, Calcutta.
7-3-27	R	Stagg , M., LT.-COL., R.E., O.B.E., <i>Master, H.M.'s Mint</i> . 47, Strand Road, Calcutta.
7-3-23	F	Stamp , L. DUDLEY, B.A., D.SC. University of London, London School of Economics, Houghton Street, London, W.C. 2.
4-1-26	N	Stapleton , GRACE (MISS), M.D., B.S. (LONDON). Government Caste and Gosha Hospital, Triplicane, Madras.
28-9-04	L	* Stapleton , HENRY ERNEST, M.A., B.SC., I.E.S., F.A.S.B., <i>Late Director of Public Instruction, Bengal</i> . St. Brelade, Jersey, C.I. England.
5-11-28	N	Statham , R. M., C.I.E., B.A., I.E.S., <i>Director of Public Instruction, Travancore</i> . Trivandrum, Travancore.
6-5-25	R	Staub , MAX, <i>Consul for Switzerland</i> . 100, Clive Street, Calcutta.
1-8-23	A	Stow , SIR ALEXANDER MONTAGU, K.C.I.E., O.B.E., M.A. (CANTAB.), I.C.S., <i>Late Chief Commissioner</i> . Delhi.
1-11-22	R	Strickland-Anderson (MRS.). 1, Alipur Park, Calcutta.
2-6-20	R	Suhrawardy , HASSAN, LT.-COL., O.B.E., M.D., F.R.C.S.I., D.P.H., <i>Chief Medical Officer, E.B. Ry., Vice-Chancellor, Calcutta University</i> . 3, Suhrawardy Avenue. Park Circus, Calcutta.
4-4-27	R	Suhrawardy , SIR Z. R. Z., KT., <i>Late Judge, High Court</i> . 61, Ripon Street, Calcutta.
3-3-20	N	Sundararaj , BUNGURU, M.A., PH.D., <i>Director of Fisheries</i> . Chepauk, Madras.
7-11-32	L	Suvarna , SHUMSER JUNG BAHADUR RANA, <i>Major-General in the Nepalese Army</i> . Singha Darbar, Kathmandu, Nepal.
7-4-30	N	Swami , VIDYA NAND. Jasdan State, Kathiawad.
6-4-98	R	Tagore , SIR PRADYOT COOMAR, KT., MAHARAJA BAHADUR. 'Emerald Bower', 56, Barrackpore Trunk Road, 24-Pergs.
7-11-27	R	Tarkatirtha , BIMALANANDA, <i>Kaviraj, Punditbhusan, Byakaranatirtha</i> . 90/3, Grey Street, Calcutta.
31-8-93	L	Tate , GEORGE PASSMAN. 56, Cantonment. Bareilly, U.P.

Date of Election.		
2-5-32	R	Thakur, AMARESWAR, M.A., PH.D., <i>Lecturer, Calcutta University, Hon. Secretary, Sanskrit Publication Department, Metropolitan Printing and Publishing House. 56, Dhurumtollah Street, Calcutta.</i>
2-12-29	R	Thomas, H. W., F.C.S., M.P.S., <i>Senior Partner and Chairman of the Managing Directors, Messrs. Smith Stanistreet & Co. Stanistreet House, 18, Convent Road, Entally, Calcutta.</i>
1-6-04	L	*Tipper, GEORGE HOWLETT, M.A., F.G.S., M.INST.M.M., F.A.S.B. 'The Laurels', Glebe Road, Cambridge, England.
4-3-29	N	Travers, SIR WALTER LANCELOT, KT., C.I.E., O.B.E., M.L.C., <i>Tea Planter, Baradighi Tea Estate. Baradighi P.O., B.D.R., Jalpaiguri.</i>
7-5-28	F	Tucci, GIUSEPPE, PH.D., <i>Late Professor of Religions and Philosophy of India and the Far East, University of Rome, Professor of Chinese, University of Naples. Naples, Italy.</i>
5-7-26	F	Tyson, JOHN DAWSON, M.A. (OXON), I.C.S., J.P., <i>Private Secretary to H.E. the Governor of Bengal. Government House, Calcutta.</i>
6-8-28	F	Urchs, OSWALD, M.D. c/o Messrs Havero Trading Co., Ltd. Post Box 642, Bombay.
7-3-27	R	Urquhart, REV. W. S., M.A., D.D., D.LITT., <i>Principal, Scottish Church College, and Late Vice-Chancellor, Calcutta University. 3 & 4, Cornwallis Square, Calcutta.</i>
4-7-27	N	Vance, R. L., M.B., MAJOR, <i>Indian Medical Service. Office of the Chief Medical Officer, Western India States Agency, Rajkot, Kathiawar.</i>
6-6-32	F	Vere-Hodge, MRS. E. H., <i>Author. The Causey, Cranleigh, Surrey, England.</i>
5-7-05	R	Vidyabhusana, AMULYA CHARAN. 28A, Telepara Lane, Calcutta.
1-2-32	R	Visser, PH. C., <i>Consul-General for the Netherlands. E-1, Clive Buildings, Clive Street, Calcutta.</i>
6-3-01	L	*Vogel, JEAN PHILIPPE, LITT.D., F.A.S.B. Noordeindsplein, 4a, Lieden, Holland.
27-9-94	L	Vost, WILLIAM, LT.-COL., I.M.S. Leicester Lodge, 1, Medina Villas, Hove, Sussex, England.
6-5-25	R	Wadia, D. N., M.A., B.SC., F.R.G.S., F.G.S., <i>Geological Survey of India. Indian Museum, Calcutta.</i>
5-3-28	N	Waight, HARRY GEORGE, B.A. (OXON and LOND.), F.R.G.S., I.C.S., <i>District and Sessions Judge. Burdwan.</i>
2-1-28	N	Wats, R. C., CAPTAIN, M.D., D.P.H., D.T.M., I.M.S. Mhow, Indore, C.I.
2-5-27	A	Watson, SIR ALFRED HENRY, KT., <i>Late Editor, The 'Statesman,' Calcutta. England.</i>
2-2-31	R	Wauchope, R. S., O.B.E., A.I.C.E., F.R.A.I., MAJOR, I.A., 8, Park Chambers, 93, Park Street, Calcutta.
1-11-26	R	Westcott, FOSS, MOST REVEREND, D.D. (CANTAB.), HONORARY D.D. (OXON.), <i>Bishop of Calcutta and Metropolitan of India, Burma, and Ceylon. Bishop's House, 51, Chowringhee, Calcutta.</i>
19-9-06	L	*Whitehead, RICHARD BERTRAM, F.A.S.B., I.C.S. (RETD.). 30, Millington Road, Cambridge, England.

Date of Election.		
6-5-29	R	Williams, HENRY FRENCH FULFORD, M.A., CLARE COLLEGE (CAMB.), Chaplain of Barrackpore. Barrackpore.
6-2-28	F	Williams, T. TALIESIN, M.A., B.SC. 2, Orchard, Welwyn Garden City, Herts., England.
7-3-06	L	*Woolner, ALFRED COOPER, C.I.E., M.A., F.A.S.B., Vice-Chancellor, Punjab University. 53, Lawrence Road, Lahore.
1-4-08	R	Wordsworth, WILLIAM CHRISTOPHER, M.A., I.E.S. (RETD.). c/o The 'Statesman', Chowringhee Square, Calcutta.
7-3-27	N	Wright, FREDERIC MAITLAND, Broker. Post Box No. 72, Bombay.
5-2-19	N	Yazdani, GHULAM, M.A. <i>Epigraphist to the Government of India for Persian and Arabic Inscriptions, Hyderabad.</i> Archæological Survey, Hyderabad, Deccan.

ORDINARY MEMBERS.

(Chronological.)

1884.				1905.			
Nov.	5.	Middlemiss, C. S.		July	5.	Ghosh, A. C.	
1887.				Aug.	2.	McCay, D.	30
Aug.	25.	Criper, W. R.		1906.			
1888.				Jan.	3.	Chapman, J. A.	
June	6.	Pennell, A. P.		Mar.	7.	Nahar, P. C.	
1889.				"	"	Woolner, A. C.	
Mar.	6.	La Touche, T. H. D.		June	6.	Mitra, M. N.	
1890.				Sept.	19.	Whitehead, R. B.	35
5	Mar.	5.	Ray, Sir Prafulla C.	Oct.	31.	Finlow, R. S.	
1892.				1907.			
Jan.	11.	MacLagan, Sir Edward D.		July	3.	Brown, J. C.	
Feb.	1.	Bodding, P. O.		"	"	Christie, W. A. K.	
1893.				1908.			
Aug.	31.	Tate, G. Passman		Jan.	1.	Brahmachari, U. N.	
1894.				April	1.	Wordsworth, W. C.	40
Sept.	27.	Vost, W.		Nov.	4.	Bhattacharji, B.	
1895.				1909.			
10	Mar.	6.	Bose, Sir Jagadis C.	Jan.	6.	Shirreff, A. G.	
July	3.	Beatson-Bell, Sir Nicholas D.		Mar.	3.	Chakravarti, N.	
Sept.	19.	De, K. C.		"	"	Sarvadhikary, Sir D. P.	
1896.				April	7.	Bentley, C. A.	45
Jan.	8.	Burn, Sir Richard		July	7.	Bazaz, R. K.	
1897.				"	"	Bhattacharji, S. N.	
Dec.	1.	Seth, M. J.		Oct.	6.	Brown, P.	
1898.				"	"	Brühl, P.	
15	Jan.	5.	Dods, W. K.	"	"	Gangoli, O. C.	50
April	6.	Tagore, Sir Pradyot C.		Nov.	3.	Christophers, Sir S. R.	
May	4.	Mookerjee, Sir R. N.		1910.			
1900.				May	4.	Dhavle, S. B.	
Dec.	5.	Grieve, J. W. A.		"	"	Kemp, S. W.	
1901.				Sept.	7.	Gravely, F. H.	
20	Mar.	6.	Khan, H. R.	1911.			
"	"	"	Vogel, J. P.	Feb.	1.	Insch, J.	55
June	5.	Mann, H. H.		"	"	Law, N. N.	
Dec.	4.	Ross, Sir Edward D.		Mar.	1.	Mahtab, Sir Bijay Chand	
1902.				May	3.	Lomax, C. E.	
Feb.	5.	Shyam Lal.		June	7.	Chatterjee, K. K.	
July	2.	Doxey, F.		"	"	Hosain, M. H.	60
1904.				July	5.	Sewell, R. B. S.	
25	June	1.	Pilgrim, G. E.	Nov.	1.	Ahmed, K.	
"	"	"	Tipper, G. H.	1912.			
Aug.	3.	Fermor, L. L.		Jan.	10.	Kazim Shirazi, A. M.	
"	"	Stapleton, H. E.		May	1.	Harley, A. H.	
				June	5.	Misra, C.	65
				July	3.	Andrews, E. A.	

	Sept.	4.	Ghosh, T.
	"	"	Singhi, B. S.
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	1913.		
	Mar.	5.	Simonsen, J. L.
70	April	2.	Calder, C. C.
	June	4.	Majumdar, R. C.
	Nov.	5.	Fox, C. S.
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	1914.		
	Mar.	4.	Bacot, J.
	April	1.	Chaudhuri, G. D.
75	July	1.	Law, S. C.
	Aug.	5.	Law, B. C.
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	1915.		
	April	7.	Ohtani, Count K.
	Aug.	4.	Gurner, C. W.
	Sept.	1.	Cleghorn, M. L. W.
80	"	"	Das-Gupta, H. C.
	Oct.	27.	Chatterjee, Sir A. C.
<hr/>			
	1916.		
	Feb.	2.	Majumdar, N. K.
	June	7.	Mahajan, S. P.
	July	5.	Sarkar, G.
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	1917.		
85	April	4.	Awati, P. R.
	June	6.	Deb, H. K.
	"	"	Aiyangar, K. V. R.
	Aug.	1.	Bhandarkar, D. R.
<hr/>			
	1918.		
	Feb.	6.	Banerji, N. N.
90	"	"	Ghosh, E. N.
	"	"	Manen, Johan van
	"	"	Singh, B. M.
	April	3.	Prashad, B.
	"	"	Sinha, B. N.
95	Aug.	7.	Maitra, J. N.
<hr/>			
	1919.		
	Feb.	5.	Yazdani, G.
	Mar.	5.	Gupta, S. P.
	April	2.	Friel, R.
	Nov.	5.	Hemraj, R.
100	"	"	Pascoe, Sir E. H.
<hr/>			
	1920.		
	Mar.	3.	Mahalanobis, P. C.
	"	"	Sundara Raj, B.
	May	5.	Ghosh, S. N.
	June	2.	Skinner, S. A.
105	"	"	Suhrawardy, H.
	July	7.	Knowles, R.
	Aug.	4.	Dikshit, K. N.
	Sept.	1.	Chakladar, H. C.
	"	"	Chanda, R.
110	"	"	Chatterjee, N. C.

	Dec.	1.	Connor, Sir F. P.
	"	"	Akbar Khan, M.
<hr/>			
	1921.		
	Jan.	5.	Ray, J.
	Feb.	2.	Jain, Chhote Lall
	"	"	Mukerjee, R. 115
	"	"	Mookerjee, S. C.
	Mar.	2.	Acton, H. W.
	"	"	Agharkar, S. P.
	June	1.	Muzamilullah Khan, Mohammad
	Sept.	7.	Ray, H. C. 120
	Nov.	2.	Hora, S. L.
<hr/>			
	1922.		
	Feb.	1.	Bhattacharya, V. S.
	"	"	Chopra, R. N.
	"	"	Raman, Sir C. V.
	April	5.	Abdul Ali, A. F. M. 125
	"	"	Bose, J. C.
	June	5.	Bhattacharya, S. P.
	Sept.	6.	Das-Gupta, S. N.
	Nov.	1.	Strickland-Anderson, Mrs.
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	1923.		
	Mar.	7.	Lacey, G. T. 130
	"	"	Stamp, L. D.
	May	2.	Shebbeare, E. O.
	June	6.	Howard, A.
	"	"	Hutton, J. H.
	Aug.	1.	Biswas, K. P. 135
	"	"	Stow, Sir A. M.
	Dec.	5.	Chopra, B. N.
	"	"	Barwell, N. F.
	"	"	Jackson, P. S.
	"	"	Sen, H. H. Lakshman 140
	"	"	Pande, S. B.
<hr/>			
	1924.		
	Feb.	6.	Mahindra, K. C.
	Mar.	5.	Banerjee, P. N.
	"	"	Kanjilal M. N.
	"	"	Mukerji, S. 145
	"	"	Martin, T. L.
	"	"	Mitter, Sir P. C.
	"	"	Mitter, Sir B. L.
	"	"	Mitter, D. N.
	"	"	McPherson, J. 150
	"	"	Chatterji, M. M.
	"	"	Sircar, Sir N. N.
	"	"	Sircar, Sir N. R.
	April	2.	Bahl, K. N.
	"	"	Ghose, K. 155
	"	"	Judah, N. J.
	"	"	Richards, F. J.
	"	"	Haq, M.
	"	"	Mitra, J. C.
	"	"	Ghose, Sir C. C. 160

	May	7.	Rose, G. F.	
	"	"	Bhattacharya, B.	
	July	2.	Ray, A. C.	
	"	"	Mookerjee, S. P.	
165	Aug.	6.	Chatterji, S. K.	
	"	"	Nyss, Wm. B. S.	
	"	"	Moloney, W. J.	
	"	"	Roy-Chowdhury, B. K.	
	"	"	Davies, L. M.	
170	Nov.	5.	Chattopadhyay, K. P.	
	"	"	Baidil, A. M.	
	"	"	Sahni, B.	
	"	"	Mookerji, B. N.	
	"	"	Kapur, S.	
175	Dec.	3.	Das, S. N.	
	"	"	Mookerjee, J. N.	
	"	"	Newman, Chas. F.	
	"	"	Pushong, E. S.	
	"	"	Rogers, T. E.	
180	"	"	Basu, J. N.	
	"	"	Ghose, S. C.	
	"	"	Sarkar, C. K.	
	"	"	Hendry, C. A.	
	"	"	Roerich, G. N.	
185	"	"	Sen, H. K.	
	"	"	Khan, R. R.	

	1925.			
	Feb.	4.	Guha, B. S.	
	Mar.	4.	Benthall, E. C.	
	"	"	Das, A. N.	
190	"	"	Deb, Kshitindra	
	April	1.	Perier, F.	
	"	"	Hobbs, H.	
	"	"	Laden La, S. W.	
	"	"	Sidiq, S. M.	
195	"	"	Sen, B. C.	
	May	6.	Abbasi, M. A.	
	"	"	Baral, G. C.	
	"	"	Bose, H. M.	
	"	"	Jatia, Sir O. M.	
200	"	"	Khanna, V. L.	
	"	"	Koester, Hans	
	"	"	Staub, Max.	
	"	"	Wadia, D. N.	
	June	3.	Datta, S. K.	
205	"	"	Lal, B. B.	
	"	"	Musa, M.	
	July	6.	Bose, M. M.	
	Aug.	3.	Chhibber, H. L.	
	"	"	Coyajee, Sir J. C.	
210	"	"	Pruthi, H. S.	
	Nov.	2.	Acharya, P.	
	"	"	Chattopadhyaya, K. C.	
	"	"	Crookshank, H.	
	"	"	Kimura, R.	
215	"	"	Sharif, M.	
	Dec.	7.	Afzal, S. M.	

	1926.			
	Jan.	4.	Fleming, Andrew	
	"	"	Gaffar, Abdul	
	"	"	Hubert, Otto	
	"	"	Murray, H.	220
	"	"	Shortt, H. E.	
	"	"	Sinton, J. A.	
	"	"	Stapleton, G. (Mis ^{ss})	
	Feb.	1.	Ruthnaswamy, M.	
	"	"	Rao, T. R.	225
	"	"	Kashyap, S. R.	
	"	"	Ghuznavi, Sir A. K.	
	"	"	Hingston, H.	
	"	"	Harris, H. G.	
	"	"	Ghuznavi, A. H.	230
	"	"	Khambata, R. B.	
	Mar.	1.	McKay, J. W.	
	"	"	Snaith, J. F.	
	"	"	Mukherjee, A. N.	
	"	"	Datta, H. N.	235
	"	"	Basu, N. K.	
	"	"	Kramrisch, Stella	
	"	"	Bagnall, J. F.	
	April	5.	Senior-White, R.	
	"	"	Ghose, B. C.	240
	"	"	Parker, R. H.	
	"	"	Bhatia, M. L.	
	"	"	Mitter, K. N.	
	"	"	Jones, T.	
	May	3.	Bhagwant Rai.	245
	June	7.	Lemmon, R. D.	
	July	5.	Mukhopadhyaya, P. K	
	"	"	Tyson, J. D.	
	"	"	Lyne, H. W.	
	Aug.	2.	Sohoni, V. V.	250
	"	"	Majumdar, D. N.	
	"	"	Mukherjee, J. N	
	"	"	Khettry, B.	
	Nov.	1.	Jameson, T. B.	
	"	"	Modi, J. R. K.	255
	"	"	Westcott, F.	
	"	"	Barhut, T. K.	
	"	"	Ramanujaswami, P. V.	
	"	"	Mills, J. P.	
	"	"	Galstaun, S.	260
	"	"	Chokhani, S.	
	"	"	Bagchi, P. C.	
	Dec.	6.	Aiyangar, S. K.	
	"	"	Guha, S. N.	
	"	"	Roy, A. K.	265

	1927.			
	Jan	3.	Chakravarty, N.	
	"	"	Bivar, H. G. S.	
	Feb.	7.	Imam, A. M. S. H.	
	"	"	Chatterjee, A.	
	"	"	Captain, D. M.	270
	Mar.	7.	Hopkinson, A. J.	
	"	"	Urquhart, W. S.	
	"	"	Bake, A. A.	
	"	"	Rankin, Sir G.	

Chronological List of Ordinary Members

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275	Mar.	7.	Stagg, M.	May	7.	Basak, S. C.	330
	"	"	Ghosh, P. N.	"	"	Lord Sinha of Raipur	
	"	"	Abdul Kadir, A. F. M.	"	"	Saha, M. N.	
	"	"	Fukushima, N.	June	4.	Bhadra, S. N.	
	"	"	Wright, F. M.	"	"	Hobart, R. C.	
280	April	4	Helland, B. A.	"	"	Narasimham, Y.	335
	"	"	Suhrawardy, Sir	"	"	Bhattasali, N. K.	
	"	"	Z. R. Z.	July	2.	Roerich, N.	
	"	"	Dewick, E. C.	"	"	Das, P. K.	
	May	2.	Watson, Sir A. H.	"	"	Hosain, Musharruf	
	June	6	Nandi, Maharaja S. C.	Aug.	6.	Jaitly, P. L.	340
285	"	"	Jain, B.	"	"	Urchs, O.	
	"	"	Sinha, S. P.	"	"	Ghuznavi, I. S. K.	
	July	4.	Chatterjee, P.	"	"	Drummond, J. G.	
	"	"	Chakravarti, C.	"	"	Heron, A. M.	
	"	"	Vance, R. L.	Nov.	5.	Olpadvala, E. S.	345
290	Nov.	7.	Tarkatirtha, B.	"	"	Bose Mullick, G. N.	
	"	"	Mukherji, D.	"	"	Ishaque, M.	
	"	"	Brahmachary, S. C.	"	"	Chopra, G.	
	Dec.	5.	Namgyal, H.H. Sir	"	"	Statham, R. M.	
	"	"	Tashi	"	"	Reinhart, W.	350
	"	"	Dechhen, H.H. Kun- zang	"	"	Galstaun, J. C.	
295	"	"	Chowdhury, C.	1929.			
	"	"	Mukerjee, S. K.	Jan.	7.	Basu, S. C.	
				"	"	Ghose, M. C.	
	1928.			Feb.	4.	Narain, Hirde	355
	Jan	2.	Basu, N. M.	"	"	Jenkins, W. A.	
	"	"	de Mello, F.	"	"	Dev, Raja R.	
	"	"	Puri, I. M.	Mar.	4.	Mani, M. S.	
300	"	"	Wats, R. C.	"	"	Travers, Sir W. L.	
	Feb.	6.	Sinha, S. C.	"	"	Mitter, H. K.	
	"	"	Kewal, G. S.	"	"	De, J. C.	360
	"	"	Ezra, Sir D.	"	"	Basu, B. K.	
	"	"	Reneman, Nico	"	"	Lunan, A. G.	
305	"	"	Mukerji, M. N.	"	"	Mullick, P. N.	
	"	"	Rai, L. N.	"	"	Mitra, J. M.	
	"	"	Williams, T. T.	April	1.	Ghose, D. P.	365
	"	"	Shumsher, Sir Kaiser	"	"	Asadullah, K. M.	
	Mar.	5.	Waight, H. G.	"	"	Rizvi, S. H. H.	
310	"	"	Gooptu, D. N.	"	"	Ginwala, Sir P.	
	"	"	Neogi, P.	"	"	Sen-Gupta, N. C.	
	"	"	Biswas, C. C.	May	6.	Sharma, S. R.	370
	"	"	Eberl, Otto	"	"	Williams, H. F. F.	
	April	2.	Roy, S. K.	"	"	Sastri, D. S. B.	
315	"	"	Mullick, K. C.	"	"	Pawsey, C. R.	
	"	"	Bhattacharjee, N. C.	"	"	Sanyal, S. C.	
	"	"	Kumar, K. K.	July	1.	Dunn, J. A.	375
	"	"	Chowdhury, Rai J.	Aug.	5.	Sommerfeld, A.	
	"	"	Harris, L. E.	Nov.	4.	Berthoud, G. F.	
320	"	"	Mookerjee, B.	"	"	Singh, J.	
	May	7.	Chatterji, K. N.	"	"	Mitra, M. N.	
	"	"	Chatterjee, Sir N. R.	"	"	Cotter, G. de P.	380
	"	"	Tuoci, G.	"	"	Campbell, G. R.	
	"	"	Murray, E. F. O.	"	"	Parry, N. E.	
325	"	"	Moledina, M. H.	"	"	Jarvis, R. Y.	
	"	"	Gupta, J. N.	"	"	Edwards, L. B.	
	"	"	Basu, N.	"	"	Siddiqi, M. Z.	385
	"	"	Ghosal, U. N.	"	"	Kurup, P. C. K.	
	"	"	Mallik, S. C.	"	"	Mallya, B. G.	

	Dec.	2.	Fisher, F. B.
	"	"	Khan, M. R.
390	"	"	Fawcus, L. R.
	"	"	Thomas, H. W.
<hr/>			
	1930.		
	Jan.	6.	Jain, N. K.
	"	"	Haldar, S. K.
	"	"	Bassewitz, Count
395	"	"	Hamilton, Sir D. M.
	"	"	Martin, M. F. C.
	"	"	Chakraverti, S. C.
	Feb.	3	Henderson, A. G.
	"	"	Mahtab, U. C.
400	"	"	Korni, M. A.
	"	"	Pettigrew, W.
	"	"	Chakravarti, M. N.
	Mar	3.	Mukharji, I. C.
	"	"	Ashtou, H. S.
405	April	7.	Pessein, J. F.
	"	"	Ahmad, S. K.
	"	"	Swami, V. N.
	May	5.	Deo, P. C. Bhanj
	"	"	Matthias, O. G.
410	"	"	Mallam, G. L.
	"	"	Cooper, G. A. P.
	June	2.	Kenny, D. E. C.
	"	"	Oyevaar, J. J.
	July	7.	Mahudavala, J. J.
415	Aug.	4.	Popper, S. W.
	"	"	Raparia, T. C.
	Nov.	3.	Sahaya, S.
	"	"	Austin, G. J.
	"	"	Rahman, S. K.
420	"	"	Newman, C. D.
	Dec.	1.	Roy, Kumar K.

	1931.		
	Jan.	5.	Fooks, H. A.
	"	"	Bhattacharji, U. C.
	"	"	Shukla, J. P.
	"	"	Chatterji, D. 425
	"	"	Evans, P.
	Feb	2.	Wauchope, R. S.
	"	"	Douglas, G. W.
	"	"	Clough, J.
	Mar.	2.	Bose, S. K. 430
	"	"	Kothari, N. L.
	April	6.	Bhose, J. C.
	"	"	Prasad, S.
	May	4.	Bottomley, J. M.
	June	1.	Lort-Williams, J. 435
	Aug.	3.	Barua, K. L.
	Dec.	7.	Eliade, M.

	1932.		
	Feb.	1.	Holme, J. W.
	"	"	Visser, Ph. C.
	"	"	Clendenin, D. L. 440
	Mar.	7.	Hughes, A.
	"	"	Chakraborty, K. B.
	"	"	Darbari, M. D.
	May	2.	Thakur, A.
	"	"	Muhammad, M. 445
	June	6.	Vere-Hodge, E. H.
	July	4.	Chatterjee, S. P.
	Nov.	7.	Suvarna Shumser
	"	"	De, A. C.
	"	"	Driver, D. C. 450
	"	"	Sitling, G. T.
	Dec.	5.	Dutt, N.

LIFE MEMBERS.

(Chronological.)

	5-11-84	C. S. Middlemiss (30 N.).	7- 6-11	M. Hidayat Hosain (27 N.).	
	6- 6-88	A. P. Pennell (88 F.).	5- 7-11	R. B. S. Sewell (28 N.).	
	6- 3-89	T. H. D. La Touche (10 N.).	1-11-11	Kamaluddin Ahmad 30 (24 N.).	
	11- 1-93	Sir Edward D. MacLagan (94 R.).	5- 3-13	J. L. Simonsen (19 N.).	
5	1- 2-93	P. O. Bodding (14 N.).	4- 3-14	J. Bacot (14 F.).	
	31- 7-93	G. P. Tate (23 N.).	5- 7-16	G. Sircar (29 N.).	
	27- 9-94	W. Vost (94 F.).	6- 2-18	E. N. Ghosh (25 R.).	
	3- 7-95	Sir Nicholas D. Beatson-Bell (95 N.).	6- 2-18	Johan van Manen 35 (25 R.).	
	19- 9-95	K. C. De (26 R.).	3- 4-18	B. Prashad (29 R.).	
10	3- 5-98	Sir R. N. Mookerjee (29 R.).	2-11-21	S. L. Hora (30 N.).	
	5-12-00	J. W. A. Grieve (00 F.).	6- 6-23	A. Howard (30 N.).	
	6- 2-01	J. Ph. Vogel (25 F.).	5-12-23	H.H. Lakshman Sen (24 N.).	
	2- 7-02	F. Doxey (28 R.).	7- 5-24	B. Bhattacharya 40 (24 N.).	
	1- 6-04	G. H. Tipper (27 N.).	6- 8-24	L. M. Davies (24 N.).	
15	28- 9-04	H. E. Stapleton (26 R.).	3-12-24	G. Roerich (28 F.).	
	2- 8-05	D. McCay (29 F.).	6- 6-27	B. D. Jain (28 R.).	
	3- 1-06	J. A. Chapman (28 N.).	5-12-27	Sir Chhajuram Chow- dhury (27 R.).	
	7- 3-06	A. C. Woolner (28 N.).	5-12-27	H.H. Sir Tashi Nam- gyal (27 N.).	45
	19- 7-06	R. B. Whitehead (26 N.).	5-12-27	H.H. Kunzang Dech- hen (27 N.).	
20	3- 7-07	J. Coggin Brown (28 N.).	6- 2-28	Sir D. Ezra (28 R.).	
	3- 7-07	W. A. K. Christie (29 N.).	6- 2-28	Sir Kaiser Shumsher Jung Bahadur Rana (28 N.).	
	1- 1-08	U. N. Brahmachari (27 R.).	2- 7-28	N. Roerich (28 F.).	
	7- 4-09	C. A. Bentley (30 N.).	5-11-28	W. Reinhart (28 F.). 50	
	6-10-09	P. J. Brühl (28 N.).	4-11-29	G. de P. Cotter (32 N.).	
25	4- 5-10	S. B. Dhavle (10 N.).	3- 3-30	H. S. Ashton (30 N.).	
	4- 5-10	S. W. Kemp (29 F.).	5- 1-31	P. Evans (31 N.).	
	1- 2-11	Jas. Insch (28 R.).	7-11-32	Suvarna Shumser Jung Bahadur Rana (32 N.).	

SPECIAL HONORARY CENTENARY MEMBER.

Date of Election.	
15-1-84	A. H. SAYOE, <i>Professor of Assyriology, Queen's College. Oxford, England.</i>

ASSOCIATE MEMBERS.

Date of Election.	
7-12-10	*H. HOSTEN, REV., S.J. St. Joseph's College, Darjeeling.
1-2-22	†PIERRE JOHANNNS, REV., S.J., B.LITT. (OXON.), <i>Professor of Philosophy. St. Xavier's College, 30, Park Street, Calcutta.</i>
1-2-22	†ANANTAKRISHNA SASTRI, MAHAMAHOPADHYAYA, VEDANTA-VISARADA, <i>Lecturer in Sanskrit, Calcutta University. 1/3/1, Premchand Boral Street, Calcutta.</i>
6-2-24	*W. IVANOW. c/o Asiatic Society of Bengal, 1, Park Street, Calcutta.
6-2-24	*KAMALAKRISHNA SMRITITIRTHA, MAHAMAHOPADHYAYA. Bhatpara, 24-Parganas.
2-5-27	†N. N. VASU, RAI SAHIB. 20, Visvakosh Lane, Baghbazar, Calcutta.
2-12-29	SARAT CHANDRA ROY, RAI BAHADUR, M.A., B.L., <i>Editor, 'Man in India'. Church Road, Ranchi.</i>

* Re-elected for a further period of five years on 4-2-1929 under Rule 2c.

† Re-elected for a further period of five years on 7-3-1932 under Rule 2c.

INSTITUTIONAL MEMBERS.

Date of Election.	
28-10-29	The Legatum Warnerianum (Oriental Department), University of Leyden, Leyden, Holland.
2-12-29	The Adyar Library, Adyar, Madras S.
4-5-31	The Benares Hindu University, Benares.
1-6-31	The Ohtani University Library, Kyoto, Japan.
7-12-31	The Annamalai University Library, Annamalai-nagar, Chidambaram, S. India.

ORDINARY FELLOWS

Date of Election.	
2-2-10	T. H. D. La Touche, B.A., F.G.S.
2-2-10	Sir Prafulla Chandra Ray, KT., C.I.E., M.A., D.SC.

Date of
Election

2-2-10	Sir E. D. Ross, KT., C.I.E., PH.D.	
7-2-12	Sir J. C. Bose, KT., C.S.I., C.I.E., M.A., D.S.C., F.R.S.	
7-2-12	P. J. Brühl, I.S.O., F.G.S., PH.D., F.C.S.	5
7-2-12	Sir Samuel R. Christophers, KT., C.I.E., O.B.E., I.M.S., F.R.S.	
7-2-12	C. S. Middlemiss, C.I.E., B.A., F.G.S., F.R.S.	
5-2-13	J. Ph. Vogel, PH.D., LITT.D.	
5-2-13	S. W. Kemp, B.A., D.S.C., F.R.S.	
3-2-15	G. H. Tipper, M.A., F.G.S., M.INST.M.M.	10
2-2-16	Sir Richard Burn, KT., C.S.I., I.C.S.	
2-2-16	L. L. Fermor, O.B.E., A.R.S.M., D.S.C., F.G.S., M.INST.M.M.	
7-2-17	F. H. Gravely, D.S.C.	
6-2-18	J. L. Simonsen, D.S.C., F.I.C.	
6-2-18	D. McCay, M.D., M.B.C.P., I.M.S.	15
5-2-19	J. Coggin Brown, O.B.E., M.I.M.E., F.G.S.	
5-2-19	W. A. K. Christie, B.S.C., PH.D., M.INST.M.M.	
5-2-19	D. R. Bhandarkar, M.A., PH.D.	
5-2-19	R. B. Seymour Sewell, C.I.E., M.A., SC.D., M.R.C.S., L.R.C.P., F.L.S., F.Z.S., I.M.S.	
2-2-21	U. N. Brahmachari, M.A., PH.D., M.D.	20
1-2-22	Sir Edwin H. Pascoe, KT., M.A., D.S.C., SC.D., F.G.S.	
1-2-22	Ramaprasad Chanda, B.A.	
4-2-25	M. Hidayat Hosain, PH.D.	
4-2-25	Guy E. Pilgrim, D.S.C., F.G.S.	
4-2-25	Sir C. V. Raman, KT., M.A., D.S.C., PH.D., LL.D., F.R.S.	25
1-2-26	P. O. Bodding, M.A.	
7-2-27	R. Knowles, B.A., M.R.C.S., L.R.C.P., I.M.S.	
7-2-27	Johan van Manen, C.I.E.	
7-2-27	B. Sahni, D.S.C.	
7-2-27	A. C. Woolner, C.I.E., M.A.	30
6-2-28	H. E. Stapleton, M.A., B.S.C., I.E.S.	
6-2-28	B. Prashad, D.S.C., F.Z.S., F.R.S.E.	
6-2-28	C. A. Bentley, C.I.E., M.B., D.P.H., D.T.M. & H.	
4-2-29	A. Howard, C.I.E., M.A.	
4-2-29	J. H. Hutton, C.I.E., M.A., D.S.C., I.C.S.	35
4-2-29	Sir Edward D. MacLagan, K.C.S.I., K.C.I.E.	
3-2-30	H. W. Acton, C.I.E., M.R.C.S., L.R.C.P., I.M.S.	
3-2-30	G. de P. Cotter, B.A., SC.D., M.INST.M.M., F.G.S.	
3-2-30	S. L. Hora, D.S.C., F.Z.S., F.R.S.E.	
3-2-30	J. P. Mills, I.C.S., M.A., J.P.	40
3-2-30	Meghnad Saha, D.S.C., F.R.S.	
2-2-31	S. Krishnaswami Aiyangar, M.A., PH.D., F.R.HIST.S.	
2-2-31	R. N. Chopra, M.A., M.B., I.M.S.	
2-2-31	R. B. Whitehead, I.C.S. (retired).	
1-2-32	J. Bacot.	45

HONORARY FELLOWS

Date of
Election

5-2-96	CHARLES ROCKWELL LANMAN. 9. Farrar Street, Cambridge. Massachusetts, U.S.A.
2-3-04	SIR GEORGE ABRAHAM GRIERSON, K.C.I.E., O.M., PH.D., D.LITT., LL.D., F.B.A., I.C.S. (retired). Rathfarnham, Camberley, Surrey, England.

Date of Election	
6-9-11	ALFRED WILLIAM ALCOCK, C.I.E., M.B., LL.D., F.R.S. Heathlands, Belvedere, Kent, England.
6-9-11	KAMAKHYANATH TARKAVAGISA, MAHAMAHOPADHYAYA. 111/4, Shambazar Street, Calcutta.
5 5-8-15	SIR JOSEPH JOHN THOMSON, KT., O.M., M.A., SO.D., D.SC., LL.D., PH.D., F.R.S. Trinity College, Cambridge, England.
6-12-16	G. A. BOULENGER, F.R.S., LL.D. Jardin Botanique du L'Etat, Brussels.
2-5-17	HERBERT ALLEN GILES, M.A., LL.D., D.LITT., <i>Professor</i> . 10, Selwyn Gardens, Cambridge, England.
4-2-20	SYLVAIN LEVI, D.LITT. Collège de France, rue Guy-de-la-Brosse 9, Paris, Ve.
4-2-20	SIR AUREL STEIN, K.O.I.E., PH.D., D.LITT., D.SC., D.O.L., F.B.A. c/o The Librarian, School of Geography, Mansfield Road, Oxford.
10 4-2-20	A. FOUCHER, D.LITT. Boulevard Raspail 286, Paris, XVIe.
4-2-20	SIR ARTHUR KEITH, M.D., F.R.C.S., LL.D., F.R.S. Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C. 2.
4-2-20	R. D. OLDHAM, F.R.S., F.G.S., F.R.G.S. 1, Broomfield Road, Kew, Surrey, England.
4-2-20	SIR DAVID PRAIN, KT., C.M.G., C.I.E., M.A., M.B., LL.D., F.R.S.E., F.L.S., F.R.S., F.Z.S., M.R.I.A. Royal Botanic Gardens, Kew, Surrey, England.
4-2-20	SIR JOSEPH LARMOR, KT., M.P., M.A., D.SC., LL.D., D.C.L., F.R.S., F.R.A.S. St. John's College, Cambridge, England.
15 4-2-20	SIR JAMES FRAZER, KT., D.O.L., LL.D., LITT.D. Trinity College, Cambridge.
4-2-20	J. TAKAKUSU. Imperial University of Tokyo, Tokyo, Japan.
2-3-21	F. W. THOMAS, C.I.E., M.A., PH.D., <i>Boden Professor of Sanskrit, University of Oxford</i> . 161, Woodstock Road, Oxford, England.
7-6-22	SIR THOMAS HOLLAND, K.C.S.I., K.C.I.E., D.SC., F.R.S. Imperial College of Science and Technology, South Kensington, London, S W. 7.
7-6-22	SIR LEONARD ROGERS, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.S., I.M.S. 24, Cavendish Square, London, 4.
20 7-1-25	STEN KONOW. Ethnographisk Museum, Oslo, Norway.
7-3-27	THE RT. HON'BLE THE EARL OF LYTTON, P.C., G.C.S.I., G.C.I.E. Knebworth, Herts, England.
4-7-27	C. SNOUCK HURGRONJE. Rapenburg 61, Leiden, Holland.
5-12-27	LT.-COL. SIR T. WOLSELEY HAIG, K.C.I.E., C.S.I., C.B.E., M.A., C.M.G. 34, Gledstanes Road, West Kensington, London, W. 14.
2-12-29	SIR RAJENDRA NATH MOOKERJEE, K.C.I.E., K.C.V.O. 7, Harington Street, Calcutta.
25 2-12-29	DR. CHARLES J. H. NICOLLE, <i>Director</i> . Pasteur Institute, Tunis.
5-5-30	DR. R. ROBINSON, D.SC., F.R.S. Department of Chemistry, University of London, University College, Gower Street, London, W.C. 1.
5-5-30	DR. H. JACOBI. 59, Niebuhrstrasse, Bonn, Germany.
2-3-31	SHAMS-UL-ULEMA SIR J. J. MODI, KT., 211, Pilot Bunder Road, Colaba, Bombay.

CHANGES IN MEMBERSHIP.

LOSS OF MEMBERS DURING 1932.

BY RETIREMENT.

Ordinary Members.

1. S. N. Sur. (1926.)
2. T. J. Fitzgerald. (1927.)
3. Kisor Ghosh. (1927.)
4. Rev. L. E. Browne. (1924.)
5. Raja Prithwipal Singh. (1909.)
6. Kiran Chandra Dutt. (1925.)
7. Charu Chandra Bose. (1918.)
8. Mrs. F. Campbell Forrester. (1929.)
9. I. B. Brahmachari. (1926.)
10. W. C. Banerji. (1926.)
11. S. N. Bal. (1919.)
12. A. Siddiqi. (1924.)
13. M. Hurlimann. (1927.)
14. A. C. Ukil. (1925.)
15. R. M. Tagore. (1928.)
16. A. N. Chowdhury. (1928.)
17. H. N. Mukherji. (1927.)
18. Sir J. P. Thompson. (1909.)
19. H. S. Rao. (1924.)
20. P. C. Sen. (1929.)
21. H. C. Ray-Chaudhuri. (1920.)
22. R. A. Melhuish. (1928.)
23. Rev. B. M. Maynard. (1929.)
24. M. T. Titus. (1929.)
25. D. P. Goil. (1929.)
26. A. S. M. L. Rahman. (1928.)
27. S. N. Mallik. (1928.)
28. C. E. van Aken. (1929.)
29. W. W. Winfield. (1926.)
30. S. B. Setna. (1926.)
31. G. Matthai. (1919.)
32. A. P. Boral. (1929.)
33. Mrs. R. J. D. Ward. (1927.)
34. K. K. Mitter. (1926.)
35. B. M. Das. (1924.)
36. B. B. Brahmachari. (1926.)
37. Subodh Mitra. (1928.)
38. M. Vinayek Rao. (1925.)
39. V. T. Korke. (1923.)
40. Kedar Nath Das. (1928.)
41. Muralidhar Banerji. (1905.)
42. MMe. Edith de Gasparin. (1929.)
43. P. G. Bridge. (1927.)
44. J. C. Ghosh. (1927.)
45. W. A. K. Fraser. (1931.)
46. Vishwanath Singh. (1894.)
47. S. C. Mahalanobis. (1906.)
48. J. Chaudhuri. (1925.)

BY DEATH.

Ordinary Members.

1. Kumar Krishna Dutt. (1920.)
2. Geo. B. McNair. (1930.)
3. R. Douglas. (1930.) (Assassinated.)
4. J. D. Ratnakar. (1918.)
5. Vepin Chandra Rai. (1880.)

Honorary Fellow.

1. Dr. W. Caland. (1930.)

UNDER RULE 38.

1. Kalidas Bhanot. (1923.)
2. Ram Chandra Kapur. (1929.)
3. A. Subba Rao. (1926.)
4. Khan Bahadur Asaduzzaman. (1924.)
5. D. N. Gupta. (1926.)
6. Pt. Hargopal. (1928.)
7. S. C. Mookerjee. (1926.)
8. V. Narayanaswami. (1926.)
9. Bhabendra Chandra Ray. (1924.)
10. Sir A. A. Suhrawardy. (1907.)
11. B. B. Banerji. (1929.)
12. B. M. Barua. (1921.)
13. J. L. Bhatnagar. (1925.)
14. T. L. Bomford. (1912.)
15. R. K. Chaube. (1928.)
16. P. N. Deb. (1929.)
17. G. L. Hawes. (1928.)
18. M. H. Mehta. (1928.)
19. G. N. Mukherji. (1908.)
20. G. P. Pillai. (1929.)
21. Joggeswar Srimani. (1929.)

UNDER RULE 40.

1. I. A. Mohammed. (1925.)
2. L. P. E. Pugh. (1926.)
3. Sir Basil Blackett. (1922.)
4. Baron L. Plessen. (1928.)
5. E. B. Shaw. (1928.)
6. F. L. Evans. (1928.)
7. H. P. Möller. (1923.)
8. G. M. Fullerton. (1928.)

MEDALLISTS.

ELLIOTT GOLD MEDAL AND CASH.

RECIPIENTS.

- 1893 Chandra Kanta Basu.
 1895 Yati Bhusana Bhaduri.
 1896 Jnan Saran Chakravarti.
 1897 Sarasi Lal Sarkar.
 1901 Sarasi Lal Sarkar.
 1904 { Sarasi Lal Sarkar.
 Surendra Nath Maitra.
 1907 Akshoy Kumar Mazumdar.
 1911 { Jitendra Nath Rakshit.
 Jatindra Mohan Datta.
 Rasik Lal Datta.
 1913 { Saradakanta Ganguly.
 Nagendra Chandra Nag.
 Nilratan Dhar.
 1918 Bibhutibhushan Dutta.
 1919 Jnanendra Chandra Ghosh.
 1922 Abani Bhusan Datta.
 1923 Bhailal M. Amin.
 1926 Bidhu Bhusan Ray.
 1927 Kalipada Biswas.
 1931 T. C. N. Singh.
 1932 P. N. Das-Gupta.

BARCLAY MEMORIAL MEDAL.

RECIPIENTS.

- 1901 E. Ernest Green.
 1903 Sir Ronald Ross, KT., K.C.B., C.I.E., K.C.M.G., M.B.C.S.,
 F.R.C.S., D.P.H., LL.D., D.S.C., M.D., F.R.S.
 1905 D. D. Cunningham, C.I.E., F.R.S.
 1907 A. W. Alcock, C.I.E., M.B., LL.D., F.R.S.
 1909 Sir David Prain, KT., C.I.E., C.M.G., M.A., M.B., LL.D., F.R.S.E.,
 F.L.S., F.Z.S., M.R.I.A., F.R.S.
 1911 Carl Diener.
 1913 William Glen Liston, C.I.E., M.D., D.P.H.
 1915 J. S. Gamble, C.I.E., M.A., F.R.S.
 1917 H. H. Godwin-Austen, F.R.S., F.Z.S., F.R.G.S.
 1919 N. Annandale, C.I.E., D.S.C., C.M.Z.S., F.L.S., F.R.S., F.A.S.B.
 1921 Sir Leonard Rogers, KT., C.I.E., M.D., B.S., F.R.C.P., F.R.C.S.,
 F.R.S.
 1923 Sir Samuel Christophers, C.I.E., O.B.E., F.R.S., F.A.S.B., M.B.,
 LT.-COL., I.M.S.
 1925 J. Stephenson, C.I.E., B.S.C., M.B., CH.B., F.R.C.S., F.R.S.E.,
 I.M.S.
 1927 S. W. Kemp, B.A., D.S.C., F.A.S.B.
 1929 Albert Howard, C.I.E., M.A., F.A.S.B.
 1931 R. B. Seymour Sewell, C.I.E., M.A., SO.D. (CANTAB.),
 M.B.C.S., L.R.C.P., F.Z.S., F.L.S., F.A.S.B., LT.-COL., I.M.S.

SIR WILLIAM JONES MEMORIAL MEDAL.

RECIPIENTS.

- 1927 Sir Malcolm Watson, KT., LL.D. (HON.), M.D., C.M., D.P.H.
- 1928 Sir George A. Grierson, K.C.I.E., O.M., PH.D., D.LITT., LL.D.,
F.B.A., HON. F.A.S.B., I.C.S. (*retired*).
- 1930 Dr. Felix H. D'Herelle.
- 1932 Dr. C. Snouck Hurgronje.

ANNANDALE MEMORIAL MEDAL.

RECIPIENTS.

- 1927 Fritz Sarasin.
- 1930 Dr. Charles Gabriel Seligman, M.D., F.R.C.P., F.R.S.

JOY GOBIND LAW MEMORIAL MEDAL.

RECIPIENTS.

- 1929 Max Weber.
- 1932 Dr. Ernst J. O. Hartert, PH.D.

PAUL JOHANNES BRÜHL MEMORIAL MEDAL.

RECIPIENT.

- 1931 Rev. Ethelbert Blatter, S.J.

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## PROCEEDINGS OF THE ORDINARY MONTHLY MEETINGS, 1932.

JANUARY, 1932.

*No Meeting.*

FEBRUARY, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 1st, immediately after the termination of the Annual Meeting.

PRESENT.

THE HON'BLE MR. JUSTICE C. C. GHOSE, K.T., BARRISTER-AT-LAW, President, in the Chair.

### *Members :*

Agharkar, Dr. S. P.  
Bhose, Mr. J. C.  
Bottomley, Mr. J. M.  
Brown, Mr. Percy  
Chatterjee, Mr. P. P.  
Chatterji, Mr. M. M.  
Chopra, Lt.-Col. R. N.

Fermor, Dr. L. L.  
Hobbs, Mr. Harry  
Hora, Dr. S. L.  
Insch, Mr. James  
Jenkins, Dr. W. A.  
Manen, Mr. Johan van  
Ray, Dr. Hem Chandra  
Ray-Chaudhuri, Dr. H. C.

The minutes of the last meeting were read and confirmed.

The General Secretary announced that the presentations of books, etc., received during the last month would be exhibited at the next Monthly Meeting.

The following candidates were balloted for for election as Ordinary Members :—

(1) *Holme, James William*, M.A., Principal, La Martinière, 11, Loudon Street, Calcutta.

Proposer : J. M. Bottomley.

Seconder : A. M. Heron.

(2) *Khan, G. Ahmed*, Census Commissioner, Begumpet P.O., Hyderabad, Deccan.

Proposer : M. Mahfuz-ul Haq.

Seconder : S. L. Hora.



(3) *Visser, Ph. C.*, Consul-General for the Netherlands, 7, Alipore Park Road, West, Calcutta.

Proposer : Upendra Nath Brahmachari.

Secunder : Johan van Manen.

(4) *Clendenin, David Lawrence*, B.A. (Yale, 1928), 32, East 64 Street, New York City, U.S.A. (St. Paul's College, 33/1, Amherst Street, Calcutta.)

Proposer : P. G. Bridge.

Secunder : Johan van Manen.

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

K. S. Kolah (An Ordinary Member, 1925).

H. H. Haines (An Ordinary Member, 1907, Fellow, 1915).

E. S. Feegrade (An Ordinary Member, 1927).

H. Cooper (An Ordinary Member, 1927).

A. D. Derviche-Jones (An Ordinary Member, 1928).

J. P. F. Quirke (An Ordinary Member, 1930).

Alexander Jardine (An Ordinary Member, 1928).

B. Shaha (An Ordinary Member, 1928).

J. M. Ray (An Ordinary Member, 1930).

N. N. Mukherjee (An Ordinary Member, 1924).

A. L. Collet (An Ordinary Member, 1926).

B. B. Ghosh (An Ordinary Member, 1924).

E. J. Bradshaw (An Ordinary Member, 1925).

K. Ramunni Menon (An Ordinary Member, 1925).

The Hon'ble S. K. Sinha (An Ordinary Member, 1930).

W. L. Harnett (An Ordinary Member, 1923).

C. S. Fox (resignation since withdrawn).

In accordance with Rule 38, the General Secretary announced that the names of the following members, who had, since the last Ordinary Monthly Meeting, been suspended as defaulters within the Society's building, had now been removed as defaulters from the Society's registers for non-payment of dues :—

Kalidas Bhanot.

Ram Chandra Kapur.

A. Subba Rao.

Khan Bahadur Asaduzzaman.

D. N. Gupta.

Pt. Hargopal.

S. C. Mookerjee.

V. Narayanaswami.

Bhabendra Chandra Ray.

Sir Abdulla Suhrawardy.

In accordance with Rule 2 (c), the General Secretary announced that the Council recommends for re-election for a further term of five years the following gentlemen as Associate Members of the Society :—

Rev. Fr. Pierre Johannis (Sanskritist).

MM. Anantakrishna Sastry (Sanskritist).

Mr. N. N. Vasu (Sanskritist).

The General Secretary stated the grounds on which the recommendation had been made.

The President announced the result of the ballot for the election of the Ordinary Members and declared all candidates duly elected.

The President announced that a meeting of the Medical Section had been arranged to be held on Monday, the 8th February, at 5-30 P.M.

Speaker : Lt.-Col. R. Knowles, I.M.S.

Subject : The Casualties of the Great War.

### MARCH, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 7th, at 5-30 P.M.

#### PRESENT.

THE HON'BLE MR. JUSTICE C. C. GHOSE, KT., BARRISTER-AT-LAW, President, in the Chair.

#### Members :

Asadullah, Mr. K. M.

Bhattacharya, Mr. Bisveswar

Bose, Mr. M. M.

Chatterji, Mr. M. M.

Das-Gupta, Mr. H. C.

De, Lt.-Col. J. C.

Deb, Mr. H. K.

Fawcus, Mr. L. R.

Fermor, Dr. L. L.

Hobbs, Mr. Harry

Manen, Mr. Johan van

Siddiqi, Dr. M. Z.

Sarvadhikary, Sir D. P.

Wadia, Mr. D. N.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of thirty-six presentations of books, etc., which had been placed on the table for inspection.

The following candidates were balloted for for election as Ordinary Members :—

(5) *Hughes, Arthur*, B.A. (Manchester), Indian Civil Service, Assistant Settlement Officer, Malda, Bengal.

Proposer : Sir C. C. Ghose.

Seconder : Johan van Manen.

(6) *Chakraborty, Khirode Behari*, Engineer and Manufacturer, 7, Hindusthan Park, Rash Behari Avenue (Ballygunge Avenue), Calcutta.

Proposer : Upendra Nath Brahmachari.

Seconder : S. N. Bal.

(7) *Ghose, Anu*, Mine Owner and Geologist, 19, Dum Dum Road, Calcutta.

Proposer : L. L. Fermor.

Seconder : Johan van Manen.

(8) *Darbari, M. D.*, Chartered Accountant, 100, Clive Street, Calcutta.

Proposer : M. Mahfuz-ul Haq.

Seconder : M. Hidayat Hosain.

The General Secretary reported the death of :—

Kumar Krishna Dutt (An Ordinary Member, 1920).

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

S. N. Sur (An Ordinary Member, 1926).  
 T. J. Fitzgerald (An Ordinary Member, 1927).  
 Kisor Ghosh (An Ordinary Member, 1927).  
 Rev. L. E. Browne (An Ordinary Member, 1924).  
 Raja Prithwipal Singh (An Ordinary Member, 1909).  
 Kiran Chandra Dutt (An Ordinary Member, 1925).  
 Charu Chandra Bose (An Ordinary Member, 1918).

The General Secretary reported the constitution of the various standing Committees of the Society for 1932-33 to be as follows :—

*Finance Committee :*

|                    |                      |
|--------------------|----------------------|
| President.         | } <i>Ex-officio.</i> |
| Treasurer.         |                      |
| General Secretary. |                      |
| Mr. J. C. Mitra.   |                      |

*Library Committee :*

|                    |                      |                |
|--------------------|----------------------|----------------|
| President.         | } <i>Ex-officio.</i> |                |
| Treasurer.         |                      |                |
| General Secretary. |                      |                |
| Philological       |                      | } Secretaries. |
| Jt. Philological   |                      |                |
| Biological         |                      |                |
| Physical Science   |                      |                |
| Anthropological    |                      |                |
| Medical            |                      |                |
| Library            |                      |                |

*Publication Committee :*

|                    |                      |                |
|--------------------|----------------------|----------------|
| President.         | } <i>Ex-officio.</i> |                |
| Treasurer.         |                      |                |
| General Secretary. |                      |                |
| Philological       |                      | } Secretaries. |
| Jt. Philological   |                      |                |
| Biological         |                      |                |
| Physical Science   |                      |                |
| Anthropological    |                      |                |
| Medical            |                      |                |
| Library            |                      |                |

In accordance with Rule 48 (a), the General Secretary reported that the Council had adopted the following regulations regarding the award of the 'Paul Johannes Brühl Memorial Medal'.

The Medal shall be awarded every three years at the Ordinary Annual Meeting of the Asiatic Society of Bengal, in February.

The Medal shall be bestowed on a person who,\* in the opinion of the Council, has made conspicuously important contributions to the knowledge of Asiatic Botany.

The Council shall, at a meeting preceding the Ordinary

Monthly Meeting in November, appoint an Advisory Board consisting of not less than three members.

The Advisory Board shall be termed 'The Paul Johannes Brühl Memorial Medal Advisory Board' and shall include the Biological Secretary. The Board shall appoint a Chairman from amongst its members who shall have a casting vote (in addition to his own vote) in the event of the number of votes being equally divided.

The General Secretary shall call a meeting of the Advisory Board on the first convenient date subsequent to the first Monday of December, at the same time requesting Members to bring with them to the meeting detailed statements of the work or attainments of such candidates as they may wish to propose. The General Secretary shall also place before the Board for consideration detailed statements of the work or attainments of any other candidate submitted by any Fellow of the Society. The Board shall make such arrangements as may be necessary for the selection of a name to be submitted to the Council at its December meeting.

Notwithstanding anything determined in these Regulations it shall be within the competence of the Board to abstain from the selection of any name to be submitted for the year and to report accordingly to the Council, in which case, provided the Council concurs, the award for the year shall lapse.

In accordance with Rule 2 (c), the President called for a ballot for the re-election as Associate Members for a further period of five years of the following :—

Rev. Fr. Pierre Johannis, S.J.,  
 MM. Ananta Krishna Sastry,  
 Rai Sahib N. N. Vasu,

proposed for re-election in the last Ordinary Monthly Meeting.

The following paper was read :—

1. DR. M. Z. SIDDIQI.—*The Science of Medicine under the Abbasides.*

The following communication was made :—

1. JOHAN VAN MANEN.—*The Derivation and Meaning of the Name Kangchendzonga.*

The President announced the results of the ballot for the election of Ordinary Members, and the re-election of Associate members and declared all candidates duly elected.

The President announced that a General Lecture had been arranged for to be held on Wednesday, the 16th March, 1932, at 6 P.M.

Lecturer : Mr. Ph. C. Visser, Consul-General for the Netherlands at Calcutta.

Subject : To the unknown Karakorum Mountains.

The President invited the members to communicate to the General Secretary the names and addresses of non-members to whom they wished invitations to be issued for the lecture.



### APRIL, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 4th, at 5-30 P.M.

### PRESENT.

C. W. GURNER, Esq., I.C.S., Philological Secretary, in the Chair.

#### *Members :*

Bhattacharya, Mr. U. C.  
Bose, Mr. M. M.  
Brahmachari, Dr. U. N.  
Brown, Mr. Percy  
Darbari, Mr. M. D.  
Deb, Kumar H. K.  
Ezra, Sir David

Fermor, Dr. L. L.  
Hobbs, Mr. Harry  
Haq, Mr. M. Mahfuz-ul  
Insch, Mr. James  
Manen, Mr. Johan van  
Rahman, Mr. S. K.  
Wadia, Mr. D. N.

#### *Visitors :*

David, Mrs. E.

Ezra, Mr. Ellis  
Sackloth, Mr. R. P.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of ten presentations of books, etc., which had been placed on the table for inspection.

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

Mrs. F. Campbell Forrester (An Ordinary Member, 1929).  
I. B. Brahmachari (An Ordinary Member, 1926).  
W. C. Banerjee (An Ordinary Member, 1926).  
S. N. Bal (An Ordinary Member, 1919).  
A. Siddiqi (An Ordinary Member, 1924).  
Martin Hurliman (An Ordinary Member, 1925).  
A. C. Ukil (An Ordinary Member, 1927).  
R. M. Tagore (An Ordinary Member, 1928).  
A. N. Chowdhury (An Ordinary Member, 1928).  
H. N. Mukherjee (An Ordinary Member, 1927).  
Sir John Thompson (An Ordinary Member, 1909).

The following papers were read :—

1. HARIT KRISHNA DEB.—*The Hindu Calendar and the earlier Siddhantas.*
2. M. C. CHERIAN.—*South Indian Acarina.*

The following communication was made :—

1. M. MAHFUZ-UL-HAQ.—*A note on a new Manuscript of the Rubāʿī-yāt of Umar-i-Khayyām, dated A.H. 826 (A.D. 1423).*

The following exhibit was shown and commented upon :—

1. JOHAN VAN MANEN.—*A set of Tibetan Banners depicting the sixteen Sthaviras.*

The Chairman announced that a meeting of the Medical Section had been arranged to be held during the month, of which notice would be issued in due course.

Lecturer : Dr. U. N. Brahmachari.

Subject : Treatment of Kala-Azar with intramuscular Injection of Sodium Sulphomethyl Stibanilate.

## MAY, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday. the 2nd, at 5-30 P.M.

## PRESENT.

PERCY BROWN, ESQ., A.R.C.A., Member of Council, in the Chair.

### Members :

Asadullah, Mr. K. M.  
Bacot, M. J.  
Bosc, Mr. M. M.  
Chopra, Dr. B. N.  
Deb, Kumar H. K.

Hobbs, Mr. Harry  
Hora, Dr. S. L.  
Manen, Mr. Johan van  
Prashad, Dr. Baini  
Pruthi, Dr. H. S.

Wadia, Mr. D. N.

### Visitors :

Bhaduri, Mr. J.

Das, Mr. K. N.

Mukerji, Mr. D. D.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of fourteen presentations of books, etc., which had been placed on the table for inspection.

The following candidates were balloted for for election as Ordinary Members :—

(9) *Thakur, Amareswar*, M.A., Ph.D., Lecturer, Calcutta University, Hon. Secretary, Sanskrit Publication Department, Metropolitan Printing and Publishing House, 56, Dharamtala Street, Calcutta.

Proposer : Chintaharan Chakravarti.

Seconder : Ekendranath Ghosh.

(10) *Muhammad, Mirza, Khan Bahadur*, C.I.E., LL.B., M.R.A.S.,  
Advocate, Strand Road, Basrah.

Proposer : Baini Prashad.

Seconder : M. Mahfuz-ul Haq.

The General Secretary reported the death of :—

Prof. Dr. W. Caland (An Honorary Fellow, 1930).

The General Secretary gave a short life sketch of Dr. Caland, detailing his chief publications and his relationship with the Society.

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

H. Srinivasa Rao (An Ordinary Member, 1924).

P. C. Sen (An Ordinary Member, 1929).

H. C. Ray-Chaudhuri (An Ordinary Member, 1920).

R. A. Melhuish (An Ordinary Member, 1928).

The General Secretary addressed on behalf of the Society, a few words of cordial welcome to M. J. Bacot of Paris, a Fellow of the Society, and a Life-Member, who was present at the meeting.

The following paper was read :—

1. A. C. SEN.—*The Genitalia of the Common Indian Cockroach* (*Periplaneta americana* Linn.).

The following communication was made :—

1. BAINI PRASHAD. - *Preparation of Museum Exhibits with particular reference to the newly opened hall of south Asiatic Mammals in the New York Museum of Natural History.*

The Chairman announced the result of the ballot for the election of Ordinary Members and declared both the candidates duly elected.

## JUNE, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 6th, at 5-30 P.M.

## PRESENT.

THE HON'BLE MR. JUSTICE C. C. GHOSE, KT., BARRISTER-AT-LAW, President, in the Chair.

### Members :

Bhattacharya, Mr. B.  
Bhattacharya, Mr. U. C.  
Bose, Mr. M. M.  
Brown, Mr. Percy  
Chakraborti, Mr. K. B.  
Chatterji, Dr. S. K.

Deb, Kumar H. K.  
Hora, Dr. S. L.  
Insch, Mr. James  
Jain, Mr. C. L.  
Manen, Mr. Johan van  
Wadia, Mr. D. N.

*Visitors :*

Bogdanov, Mr. L.

Mukerji, Mr. D. D.

Vissiere, M.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of seventeen presentations of books, etc., which had been placed on the table for inspection.

The following candidate was balloted for for election as an Ordinary Member :—

(11) *Vere Hodge, Mrs. E. H.*, Author, The Causey, Cranleigh, Surrey, England.

Proposer : James Insch.

Seconder : Percy Brown.

The General Secretary reported the death of :—

Geo. B. McNair (An Ordinary Member, 1930).

R. Douglas (An Ordinary Member, 1930).

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

Rev. B. M. Maynard (An Ordinary Member, 1930).

Dr. M. T. Titus (An Ordinary Member, 1929).

Lt.-Col. D. P. Goll (An Ordinary Member, 1929).

The General Secretary reported the following withdrawal of application, since the previous meeting :—

G. Ahmed Khan (Elected on 1-2-32).

The following papers were read :—

1. H. C. DAS-GUPTA.—*On a Type of sedentary Game, known as Pretoa.*

2. E. N. GHOSH.—*Studies on Rigvedic Deities. Nos. XII-XXI.*

The following communications were made :—

1. S. L. HORA.—*A few Observations on a Collection of Fishes made by the Netherlands Karakorum Expedition, 1929-30.*

2. JOHAN VAN MANEN.—*The Bibliography of Arabic and Persian Manuscripts.*

The President announced the result of the ballot for the election of an Ordinary Member, and declared the candidate duly elected.

JULY, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 4th, at 5-30 P.M.



## PRESENT.

JAMES INSCH, ESQ., Honorary Treasurer, in the Chair.

*Members :*

Brahmachari, Dr. U. N.  
Chakraborti, Mr. K. B.  
Chatterjee, Mr. P. P.  
De, Lt.-Col. J. C.  
Holme, Mr. J. W.  
Hora, Dr. S. L.

Haq, Mr. M. Mahfuz-ul  
Manen, Mr. Johan van  
Olpadvala, Mr. E. S.  
Rahman, Mr. S. K.  
Sarvadhikary, Sir D. P.  
Wadia, Mr. D. N.

Wauchope, Major R. S.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of seven presentations of books, etc., which had been placed on the table for inspection.

The following candidates were balloted for for election as Ordinary Members :—

(12) *Chatterjee, Sabitri Prasanna*, B.A., Kavyabinode, Editor, 'Upasana', 56, Dhurumtollah Street, Calcutta.

Proposer : Amareswar Thakur.

Secunder : S. L. Hora.

(13) *Alsodorf, Ludwig*, Ph.D., Scheidt (Saar), Germany.

Proposer : Johan van Manen.

Secunder : S. L. Hora.

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

A. S. M. Latifur Rahman (An Ordinary Member, 1928).

The General Secretary reported that the elections of :—

Arthur Hughes (Elected on 7-3-32), and

Anu Ghose (Elected on 7-3-32),

had become null and void, under Rule 9.

In accordance with Rule 45, the General Secretary reported that the Council submit for confirmation to the meeting the following addition to the Council as at present constituted, made in one of their meetings held since the last Ordinary Monthly Meeting :—

Member of Council : Mr. K. C. Mahindra.

Mr. Mahindra had also been appointed a member of the Finance Committee.

The appointment was confirmed.

The following communication was made :—

1. JOHAN VAN MANEN.—*Once more the ' Wild Men ', or ' Abominable Snowmen ' of Tibet.*

The Chairman announced the result of the ballot for the election of Ordinary Members and declared both the candidates duly elected.

The Chairman announced that a meeting of the Medical Section had been arranged to be held on Tuesday, the 26th July, 1932, at 6 P.M.

### AUGUST, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 1st, at 5-30 P.M.

#### PRESENT.

THE HON'BLE MR. JUSTICE C. C. GHOSE, KT., BARRISTER-AT-LAW, President, in the Chair.

#### Members :

Asadullah, Mr. K. M.  
Barwell, Lt.-Col. N.  
Brahmachari, Dr. U. N.  
Brown, Mr. Percy  
Chakladar, Mr. H. C.  
Chatterjee, Mr. P. P.  
Darbari, Mr. M. D.  
Ghose, Mr. T. P.  
Guha, Dr. B. S.  
Haq, Mr. M. Mahfuz-ul

Hobbs, Mr. Harry  
Hora, Dr. S. L.  
Hosain, Dr. M. Hidayat  
Insch, Mr. James  
Mahindra, Mr. K. C.  
Manen, Mr. Johan van  
Olpadvala, Mr. E. S.  
Rahman, Mr. S. K.  
Wadia, Mr. D. N.  
Wauchope, Major R. S.

#### Visitors :

Chandhury, Mr. K. D.

Ahmad, Mr. N.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of eleven presentations of books, etc., which had been placed on the table for inspection.

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

S. N. Mallik (An Ordinary Member, 1928).  
C. E. van Aken (An Ordinary Member, 1929).  
W. W. Winfield (An Ordinary Member, 1926).  
S. B. Setna (An Ordinary Member, 1926).

In accordance with Rule 45, the General Secretary reported that the Council submit for confirmation to the meeting the following changes in the constitution of the Council, made in one of the Council Meetings, held since the last Ordinary Monthly Meeting :—

Treasurer : Mr. K. C. Mahindra,  
vice Mr. James Insch, resigned.  
Member of Council : Dr. S. L. Hora.

The changes were confirmed.

The President proposed a hearty vote of thanks to the retiring Treasurer, Mr. James Insch, for the great services rendered by him to the Society as its Treasurer for the past one year.

Carried by acclamation.

In accordance with Rule 38, the General Secretary announced that the names of the following Ordinary Members would be suspended as defaulters within the Society's building for the period of a month to be removed from the Society's registers for non-payment unless the amount due be paid before the next Ordinary Monthly Meeting in November, 1932 :—

|                    |                    |
|--------------------|--------------------|
| B. B. Banerjee.    | Pasupati Nath Deb. |
| B. M. Barua.       | G. L. Hawes.       |
| J. L. Bhatnagar.   | M. H. Mehta.       |
| T. L. Bomford.     | G. N. Mukherjee.   |
| Ram Kumar Chaube.  | G. P. Pillai.      |
| Joggeswar Srimani. |                    |

The following communications were made :—

1. S. L. HORA.—*A marine air-breathing Fish, Andamia heteroptera (Bleeker).*
2. JOHAN VAN MANEN.—*Some difficult and interesting Expressions in the Tao te King.*

The following exhibit was shown and commented upon :—

1. B. S. GUHA.—*Portman and Mole'sworth's Photographs of the Andamanese.*

The President announced that unless special notice was given there would be no Monthly Meetings during the recess months of September and October.

## NOVEMBER, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 7th, at 5-30 P.M.

### PRESENT.

RAI UPENDRA NATH BRAHMACHARI BAHADUR, M.A., M.D., Ph.D., F.A.S.B., Medical Secretary, in the Chair.

### Members :

|                        |                      |
|------------------------|----------------------|
| Bose, Mr. M. M.        | Fawcett, Mr. L. R.   |
| Chakraborty, Mr. K. B. | Hobbs, Mr. Harry     |
| De, Mr. A. C.          | Hora, Dr. S. L.      |
| Driver, Mr. D. C.      | Manen, Mr. Johan van |
|                        | Wadia, Mr. D. N.     |

*Visitor :*

Ghosh, Mr. J. C.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of thirty-four presentations of books, etc., which had been placed on the table for inspection.

The General Secretary reported that the following candidates had been elected Ordinary Members during the recess months, under Rule 7 :—

(14) *Suvarna Shunser Jung Bahadur Rana*, Major-General in the Nepalese Army, Singha Darbar, Kathmandu, Nepal.

Proposer : Baini Prashad.

Seconder : Johan van Manen.

(15) *De, Anil Coomar*, Proprietor, Calcutta Trading Co., and President of the Bengal Association of Master Printers and Allied Industries, 79-9, Lower Circular Road, Calcutta.

Proposer : R. D. Lemmon.

Seconder : U. N. Brahmachari.

(16) *Driver, Darab Cursetji*, M.A. (Cantab.), Barrister-at-Law, Constituted Attorney to Messrs. Tata & Sons, Ltd., Managing Agents for The Tata Iron & Steel Co., Ltd., 100, Clive Street, Calcutta.

Proposer : D. N. Wadia.

Seconder : E. S. Olpadvala.

The following candidates were balloted for for election as Ordinary Members :—

(17) *Haider, Shamsuddin*, O.B.E., Khan Bahadur, District Magistrate and Collector, Gaya.

Proposer : A. F. M. Abdul Ali.

Seconder : M. Hidayat Hosain.

(18) *Sitling, G. T.*, The Ong Press, Kalimpong, D.H.R.

Proposer : Johan van Manen.

Seconder : R. B. S. Sewell.

The General Secretary reported the deaths of :—

J. D. Ratnakar (An Ordinary Member, 1918).

Vepin Chandra Rai (An Ordinary Member, 1880).

The General Secretary reported the loss of membership, since the previous meeting, by resignation of :—

G. Matthai (An Ordinary Member, 1919).

A. P. Boral (An Ordinary Member, 1929).

Mrs. R. J. D. Ward (An Ordinary Member, 1927).

K. K. Mitter (An Ordinary Member, 1926).

B. M. Das (An Ordinary Member, 1924).

In accordance with Rule 38, the General Secretary reported that the names of the following Ordinary Members, who had since the last Ordinary Monthly Meeting, been suspended as defaulters had been removed from the Society's registers for non-payment of dues :—

B. B. Banerjee.  
B. M. Barua.  
J. L. Bhatnagar.  
T. L. Bomford.  
R. K. Chaube.

P. N. Deb.  
G. L. Hawes.  
M. H. Mehta.  
G. N. Mukherjee.  
G. P. Pillai.

Joggeswar Srimani.

The General Secretary drew the attention of the Members present to a bust of Dr. U. N. Brahmachari, presented to the Society by Mrs. Brahmachari.

The following papers were read :—

1. S. L. HORA.—*Buchanan's Ichthyological Manuscript entitled Piscium Bengalæ Inferioris Delineationes.*
2. S. L. HORA and D. D. MUKERJI.—*Further Notes on Hamilton-Buchanan's Cyprinus chagunio.*
3. B. SAHNI and A. R. RAO.—*On some Jurassic Plants from the Rajmahal Hills.*
4. V. NARAYANASWAMI.—*Additional Information concerning the Provenance of the Plants constituting the Malayan Collections of Sir George King, Hermann Kunstler, Father Benedetto Scortechini and Leonard Wray, being a Supplement to Sir George King's 'Materials for a Flora of the Malayan Peninsula', and Mr. H. N. Ridley's 'Flora of the Malay Peninsula'.*

The following communication was made :—

1. JOHAN VAN MANEN.—*A new Translation of the Gita Gorinda.*

The Chairman announced the result of the ballot for the election of Ordinary Members, and declared both the candidates duly elected.



## DECEMBER, 1932.

An Ordinary Monthly Meeting of the Asiatic Society of Bengal was held on Monday, the 5th, at 5-30 P.M.

### PRESENT.

LT.-COL. R. B. SEYMOUR SEWELL, M.A., Sc.D. (Cantab.), M.R.C.S., L.R.C.P., F.L.S., F.Z.S., I.M.S., F.A.S.B., Vice-President, in the Chair.

#### *Members :*

Bhattacharya, Mr. U. C.  
Brahmachari, Dr. U. N.  
Brown, Mr. Percy  
Chakravarti, Mr. Chintaharan  
De, Mr. A. C.  
Driver, Mr. D. C.  
Ezra, Sir David  
Haq, Mr. M. Mahfuz-ul

Hobbs, Mr. Harry  
Hora, Dr. S. L.  
Hosain, Dr. M. Hidayat  
Mahindra, Mr. K. C.  
Manen, Mr. Johan van  
Prashad, Dr. Baini  
Rahman, Mr. S. K.  
Wadia, Mr. D. N.

#### *Visitor :*

Brahmachari, Mr. I.

The minutes of the last meeting were read and confirmed.

The General Secretary reported receipt of eleven presentations of books, etc., which had been placed on the table for inspection.

The following candidates were balloted for for election as Ordinary Members :—

(19) *Boyle, Cecil Alexander*, Major, D.S.O., Adviser in Languages and Secretary to the Board of Examiners, Army Headquarters, Simla.  
Proposer : Sir C. C. Ghose.  
Seconder : R. B. Seymour Sewell.

(20) *Dutt, Nalinaksha*, M.A., Ph.D., D.Litt. (Lond.), Lecturer, Calcutta University : 91-1B, Manicktollah Street, Calcutta.  
Proposer : Narendra Nath Law.  
Seconder : U. N. Ghosal.

(21) *Deb, Sushil Kumar*, B.A., Sheikghat, P.O. Sylhet, Dt. Assam.  
Proposer : Sir C. C. Ghose.  
Seconder : U. N. Brahmachari.

The General Secretary reported receipt of news of the decease of Le R. P. Maximilien Marie Paul Arnoulx Pirey, a Corresponding Member of the French School of the Far East.

The General Secretary reported receipt of news of the decease of Dr. Barton Warren Evermann, Director of the Museum of the Steinhart Aquarium of the California Academy of Sciences and Executive Curator of the Academy.

The General Secretary reported the death of Sir Ronald Ross, one of the recipients of the Barclay Memorial Medal of the Society.

The General Secretary reported the loss of membership, since the previous meeting, by the resignations of :—

B. B. Brahmachari (An Ordinary Member, 1928).  
Subodh Mitra (An Ordinary Member, 1928).  
M. Vinayak Rao (An Ordinary Member, 1925).  
V. T. Korke (An Ordinary Member, 1923).  
Kedarnath Das (An Ordinary Member, 1928).

The General Secretary reported that the election of :—

Ludwig Alsdorf (Elected on 4-7-32),

had become null and void, under Rule 9.

The General Secretary reported that the Council had nominated Rai Upendra Nath Brahmachari Bahadur to serve as the representative of the Society on the Board of Trustees of the Indian Museum, in accordance with clause II(3) of the Indian Museum Act X of 1910.

In accordance with Rule 40, the General Secretary announced that the names of the following Ordinary Members would be omitted from the next member list of the Society :—

Ismail Abdulla Mohammed.

E. R. Shaw.

L. P. E. Pugh.

F. L. Evans.

Sir Basil Blackett.

H. P. Moller.

Baron Leopold Plessen.

G. M. Fullerton.

The Chairman announced the result of the ballot for the election of Ordinary Members and declared all candidates duly elected.

## OBITUARY NOTICES.

BRAJENDRANATH DE.

(1852-1932.)

On the 23rd December, 1852, Brajendranath De was ushered into the world, this vale of joys and sorrows, of tears and laughter, in his maternal grandfather's house in Simla, near Cornwallis Square in the city of Calcutta. Both his parents belonged to middle class Kayastha families. His paternal ancestors had been residents for a long time in Bhawanipore, then in the suburbs, but now included in the town of Calcutta.

Brajendranath was very docile and obedient in his childhood and more than ordinarily intelligent, in spite of the fact that he was nicknamed 'Hablo', or the simpleton, by some of his female relations and neighbours. Like every boy of that period he had to go through what was known as 'hâthe khari' (lit. chalk in hand) ceremony. This took place when he was in his fifth year on the *Sripanchami* and *Saraswati Puja* day. The old family priest came, and after offering pujas to the family *Saligram* and *Saraswati*, the Goddess of Learning, he put a small cylindrical piece of a kind of hard grey chalk into the boy's right hand and then grasping the little hand in his big one, he wrote letters of the Bengali alphabet on the hard floor of the room where the ceremony took place. His father had a rooted antipathy equally to indigenous *pathshalas* and to missionary schools, which was perfectly justified in the case of the former, but not so much in the latter case and he therefore never went to any institution of either of these classes. As he grew up he was sent to schools at Bhawanipore and at Simla, Calcutta. Shortly after his father's departure in 1862 for Lucknow, where he had received an appointment, he was admitted into the Colootolah Branch School, now more appropriately called the Hare School. Among his classmates was Mr. N. N. Ghose, who after his return from England became the Editor of 'The Indian Nation' and wrote several biographies.

In 1865, however, Brajendranath went to Lucknow with his mother, a younger brother and a sister, to join his father. There he was admitted into Canning Collegiate School. Although he was handicapped on account of the fact that he had to take an entirely new second language (Hindi), of which he did not even know the alphabet, he surmounted all the difficulties which confronted him, and with the ever ready help and encouragement of his teacher, he stood at the end of eight or nine months at the head of his class and obtained the first prize. From that



time his position was assured and during the two years he was in school he remained at the top of his class.

In 1867 Brajendranath passed the Entrance Examination of the Calcutta University with great distinction—in those days Lucknow University had not come into existence. He successively passed the First in Arts and the Bachelor in Arts Examinations from Canning College with equally high distinction. At the time he was preparing for the Bachelor in Arts Examination he was also reading the text-books that were included in the Master in Arts Examination, English course for that year, without the knowledge of either his parents or his professors : and after he had appeared in the Bachelor in Arts Examination he saw the Principal of his College, and asked him whether he would be kind enough to certify that he should be allowed to appear in the Examination for the Master in Arts (Honours) degree, which would take place two or three months later. The Principal was at first reluctant, but when he found that Brajendranath had passed the Bachelor in Arts Examination with great credit he gave him permission and in due course, to the astonishment of everyone, he stood second in order of merit in that examination. His name can be seen written in gold on the walls of his old College.

In the middle of July, 1872, Brajendranath, armed with Rs. 1,300, sailed for England with the object of appearing for the Indian Civil Service Examination to be held in April, 1873. His father was a poor man and had to borrow money to defray his son's expenses. His father's friends came forward to help with generous alacrity and the Canning College authorities awarded him a scholarship of Rs. 50 a month for six months. Shortly after his arrival in London he met the late Mr. Srinath Dutt, and from him he received a great deal of help ; subsequently he met Messrs. Ananda Mohan Bose, P. K. Ray, Lal Mohan Ghose, K. G. Gupta, and Aghore Nath Chattopaddhaya and with all of them kept up a lifelong friendship.

Brajendranath was admitted to University College, London, and appeared in the Open Competitive Examination held in April, 1873. In due course he was informed by the Civil Service Commissioners that he had been selected as one of the successful candidates of that year. He was the eighth Indian to be selected for the Indian Civil Service.

Brajendranath had in the meanwhile joined the Honourable Society of the Middle Temple. Without exerting himself in the least he passed the law examinations of the Inns of Court and, having kept the full complement of twelve terms, was called to the Bar by that Honourable Society.

After Brajendranath had been selected as one of the successful candidates he went into residence at Oxford University and before he left England in July, 1875, he obtained the Boden Sanskrit Scholarship. At Oxford he joined the University

Union and frequently went there, but was too shy to take part in any of the debates. Mr. H. H. Asquith (Earl of Oxford), who was at Oxford at the time, was the President of the Union.

Brajendranath was posted to the headquarters of the Shahabad district in Behar after his arrival in India in September, 1875. Like all other members of his Service he was transferred from district to district and at the time he was stationed at Hughly as a Joint Magistrate he first turned his attentions to the examinations which had been instituted to induce young civilians to acquire proficiency in classical languages like Sanskrit, Persian, and Arabic, and Indian vernaculars. In his case, as a Bengali by birth, and as he had been educated in Lucknow, he was debarred from appearing in the examinations in Bengali, Hindi, and Hindustani; but of course he was at liberty to appear in all examinations in classical languages. There were then three examinations in each language (1) the higher standard, for which there was a prize of a comparatively small value, (2) the high proficiency, for which there was a prize of Rs. 2,000 in each language, and (3) the degree of honour, for passing which the prize in Sanskrit and Arabic was Rs. 5,000 each, and in Persian was Rs. 4,000. He passed the higher standard in Sanskrit and the high proficiency in Persian. He also passed the degree of honours examination in Sanskrit at the first attempt and with flying colours.

After serving the Government most loyally Brajendranath retired from service in September 1910 as Magistrate and Collector, Hughly. He twice officiated as the Commissioner of Burdwan Division, but never rose to be the permanent Commissioner of a Division. At the time of the Partition of Bengal in 1905 he showed great tact and foresight, which kept the District of Hughly quiet, although the surrounding districts were not free from political unrest.

After his retirement Brajendranath settled down in Calcutta and took up the onerous task of translating and editing the *Tabaqat-i-Akbari* for the Asiatic Society of Bengal. His love of Persian scholarship kept him busy with the work he had taken up and even during his last days when his health was fast declining, he was busy from early morning till late in the afternoon attempting to complete the arduous task he had so gallantly undertaken.

He passed away on the 28th September, 1932, in Calcutta, in full possession of all his mental faculties.

A very kind man of unlimited energy, strong will and moral force, he made no enemies and although he was of a very shy and reserved disposition he left many friends to mourn his loss.

M. HIDAYET HOSAIN.

## PROFESSOR DR. WILLEM CALAND.

(27th August, 1859–23rd March, 1932.)

Professor Caland, who died in 1932 in his 73rd year, was a scholar of rare merit, a representative of the old generation of giants, and a very valued relation of the Asiatic Society of Bengal. He was one of the last representatives of the generation of Sanskritists who had studied under Kern, the founder of the scientific study of Sanskrit in Holland.

The generation immediately preceding him were still in a position to deal with the whole domain of the new science, but towards the eighties of last century Sanskrit studies had expanded to such an extent that specialisation became imperative for any serious scholar. Caland chose as his particular domain Vedic studies, and more particularly the ritualistic documents and traditions. In this domain he became an authority and leader of international repute.

Born in Den Briel on the 27th August, 1859, he went to school in the Hague and entered the University of Leiden in 1877. He studied Sanskrit under Kern, as well as Avestic, Indian Antiquities, and Indo-Germanic Philology.

As a young boy a violent attack of articular rheumatism left cardiac complications from which he suffered during the whole of his after life and which ultimately caused his death. A very careful mode of living imposed upon him from boyhood succeeded in preserving his life to an advanced age. One of the consequences of this infirmity was that hazardous travelling became impossible to him and this great knower of ancient India has never been able to fulfil the cherished desire to visit the land which was the object of his studies. In this respect he was comparable to Immanuel Kant, who studied the universe without leaving Königsberg. An extreme orderliness of life was perhaps related to his love of music, which he gratified by playing the violin, and perhaps also to his love for numismatics which manifested itself so very early that it is on record that he began to collect coins when six years old. His delicate health forced on him a very quiet life whilst studying at Leiden University, where he obtained his Doctor's degree in June, 1883, with a thesis on Roman coins. In 1882 he was appointed Professor of Latin and Greek in Maastricht in the southern province of Limburg. In 1887 he was transferred to Breda as Vice-Principal of the Classical College there, where he mainly taught Greek. In the meantime he began publishing the results of his studies which occupied all his leisure hours left to him by his scholastic duties. In 1884 two numismatic papers opened what was to become a long and uninterrupted series of publications. In 1888 the Dutch Academy of Sciences published his work on the Cult of the Death amongst some Indo-Germanic peoples. From 1888 to 1893 he published a

number of contributions to the knowledge of the Avesta and in 1901 the Dutch Academy published a second paper, on the Syntax of the Pronouns in the Avesta. In 1893 he issued his first large work on Old Indian Ancestor Worship, followed in 1900 by his work on Old Indian Sorcery Ritual. Six years later he produced his book on Old Indian Death and Burial Customs. All these three works were published by the Dutch Academy.

In 1897 Caland was elected a member of the Royal Dutch Academy of Sciences. From this time onward Vedic studies practically monopolised his philological activities. The Sūtra-Brāhmaṇa and Samhita literature claimed his almost exclusive attention. In 1903 Caland became Reader in the University of Utrecht and in 1917 he was promoted to be University Professor. In 1929 the 70 years' age limit operated and he retired from the Chair.

Professor Caland's relations with the Asiatic Society of Bengal are of long standing. In the *Bibliotheca Indica* he has published four works, whilst the fifth is in the press, nearly finished. In 1904 the first fascicle of the Sanskrit text of the Baudhāyana-śrauta-sūtra was issued by our Society and in 1923 the work was completed in three volumes, 14 fascicles. In 1927 Professor Caland published the text of the Vaikhānasa-smārtasūtra, followed in 1929 by an English translation.

In 1931 he published a translation of the Pañcaviṃśā-Brāhmaṇa in the *Bibliotheca Indica*, a large work of 700 pages. At present the Society has still to issue posthumously Professor Caland's last contribution to the series, a text edition of the Vaikhānasa-śrauta-sūtra, which it is hoped will be issued without any great delay.

In 1930 the Asiatic Society of Bengal elected Professor Caland one of its 30 Honorary Fellows, a distinction which gave him very lively satisfaction. Professor Caland was greatly appreciated in the world of international scholarship for his attainments and achievements. In Holland, too, he was held in great esteem. A biography by Professor J. Ph. Vogel published in the Year-Book of the Dutch Royal Academy of Sciences for 1932-33 gives eloquent testimony to the fact. In the biographies of the Society for Dutch Literature at Leiden, Professor J. Rahder published another detailed biography to which N. Fukushima of Tokyo contributed a bibliography of Caland's writings, enumerating 72 items of which several group together a number of smaller productions under the same heading. Under the sub-heading Sāmaveda literature Professor Fukushima states "no single scholar has ever contributed so much to the comprehension of the Sāmaveda literature as Caland" and of one of his works published by our Society he says "an annotated translation of the Pañcaviṃśā-Brāhmaṇa

which he bequeathed to the Védicists of the world is a triumph of scholarship, fit to make permanent the fame of our Utrecht Sanskritist."

In his long and sustained correspondence with the undersigned in connection with the various works of Professor Caland published by the Society he repeatedly expressed his great appreciation of the hospitality given to his editions and translations by the Asiatic Society of Bengal, and his correspondence revealed that the scholar was also a man warmhearted, intensely human, and of deep affection.

The Society esteems its long association with Professor Caland a privilege and an honour. When the undersigned during his single visit to Holland during a stay in India for over a quarter of a century found it possible to pass a morning with Professor Caland and Mrs. Caland, partly in the large and well-stocked library and partly round the hospitable lunch table, a personal and highly valued contact was made which causes the gloom cast by the departure of this great scholar to be much darker than would have been the case if the respect had not been so greatly strengthened by affection.

JOHAN VAN MANEN.

*(Partly read in the Ordinary Monthly Meeting, 2nd May, 1932.)*

## PROCEEDINGS OF THE MEDICAL SECTION MEETINGS, 1932.

FEBRUARY, 1932.

A meeting of the Medical Section of the Asiatic Society of Bengal was held on Monday, the 8th, at 5-30 P.M.

PRESENT.

RAI UPENDRA NATH BRAHMACHARI BAHADUR, M.A., M.D.,  
Ph.D., F.A.S.B., in the Chair.

*Members :*

Chatterjee, Mr. P. P.

Mallya, Major B. G.

Ghose, Mr. T. P.

Urchs, Dr. Oswald

Knowles, Lt.-Col. R.

White, Dr. Ronald Senior

(There were also 21 visitors present.)

The minutes of the last meeting were read and confirmed.

The following paper was read :—

LT.-COL. R. KNOWLES.—*The Casualties of the Great War.*

APRIL, 1932.

A meeting of the Medical Section of the Asiatic Society of Bengal was held on Tuesday, the 26th, at 5-30 P.M.

PRESENT.

LT.-COL. R. KNOWLES, I.M.S., in the Chair.

*Members :*

Brahmachari, Dr. U. N.

De, Lt.-Col. J. C.

Sen-Gupta, Dr. S. C.

(There were also 6 visitors present.)

The minutes of the last meeting were read and confirmed.

The following paper was read :—

RAI UPENDRA NATH BRAHMACHARI BAHADUR.—*Treatment of Kala-Azar with intramuscular Injection of Sodium Sulphomethyl Stibanilate.*

**JULY, 1932.**

A meeting of the Medical Section of the Asiatic Society of Bengal was held on Tuesday, the 26th, at 6 P.M.

**PRESENT.**

RAI UPENDRA NATH BRAHMACHARI BAHADUR, M.A., M.D., Ph.D., F.A.S.B., in the Chair.

(There were 20 visitors present.)

The minutes of the last meeting were read and confirmed.

The following papers were read :—

1. UPENDRA NATH BRAHMACHARI.—*Further Observations on the Treatment of Kala-Azar with intramuscular Injection of Sodium Sulphomethyl Stibanilate.*

2. PHANINDRA NATH BRAHMACHARI and RADHAKRISHNA BANERJEA. —*The Action of Quinine on a Hæmolytic System in vitro and its Bearing, if any, on the Mechanism of Black-Water Fever.*

3. PHANINDRA NATH BRAHMACHARI and RADHAKRISHNA BANERJEA. —*The Action of certain Quinoline Compounds on Paramæcia.*

4. U. P. BASU.—*On the Problem of Prevention of Diseases of the Heart in India.*

# Numismatic Supplement for 1931-33

*[Journal and Proceedings of the Asiatic Society of Bengal]*





# Numismatic Supplement No. XLIV

[for 1931-33]

Articles 307-316

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## NUMISMATIC SUPPLEMENT No. XLIV

### ARTICLES 307-316

*Continued from "Journal and Proceedings," Vol. XXVI,  
New Series, No. 2.*

#### 307. MUHAMMAD TUGHLUQ'S FORCED COINAGE.

Thomas has misread the obverse of coin No. 198 in his *Chronicles of the Pathan Kings of Delhi*. He transcribes the legend as :—

لا بولا السلطان  
كل الناس  
بعضهم بعضا  
تغلق

and translates it as follows :—

‘Sovereignty is not conferred upon every man, (but) some (are placed over) others.’

Kunwar Muhammad Ashrafi, a student at the School of Oriental Studies, London, called my attention to the fact that this reading, though it was followed in the *British Museum Catalogue* (Nos. 311-2) and in the *Indian Museum Catalogue* (No. 388), is incorrect. The coin really reads :

لولا السلطان  
لاكل الناس  
بعضهم بعضا  
تغلق

and the meaning is : ‘If there were no Sultān one section of the people would devour the other’. Mr. Ashrafi has also referred to ‘*Tārīkh-i-Fakhr-ud-dīn Mubārak Shāh*’, edited by Sir E. Denison Ross, 1927, p. 13, to show that this was a popular saying. It is certainly not contained in Sura IV, verse 62, of the *Qoran*, to which Thomas referred it.

The misreading was due to taking the first two letters of the second line as the beginning of the first, and reading *ي* instead of *ل* as the first letter of the first line. Dr. Ramsay Wright has also informed me that لا بولا would not be correct Arabic as the imperfect tense of the root *يلى* is *يلى* not *يولا*.

There is also one other slight error in Thomas' reading of the reverse, which was corrected in the two Museum Catalogues. In the second line we should read اطيعوا for اطيعو . The word منكم comes at the beginning of the fourth line, not at the end of the third, on most specimens I have seen, though one coin in the British Museum has it as shown by Thomas.

R. BURN.

### 308. SOME NEW KUSHAN GOLD COINS.

The object of this paper is to publish two previously unknown gold coins and to draw attention to a superb specimen of a third very rare coin which has been incorrectly described heretofore from a defective specimen.

The first of the three coins is an unpublished stater of Vima Kadphises showing on the obverse a figure of the King seated side-saddle on an elephant walking left. The coin is unfortunately rubbed and one cannot see details of the howdah. You can, however, see two uprights and a horizontal cross-piece supporting the King's shoulders. The general design of this is similar to the throne of Zeus on the reverse of the silver



1



2



3



coins of Hermaios, and on the obverse of the very rare copper coins of Kanishka showing the King enthroned. This gold coin of Kadphises II is also unique in its obverse legend which is written in full as on the copper coins :—

*BACIAΣYC BACIAΣWN CWTHP MEΓAC*  
*OOHMO KAAΦICEC.*

All other gold coins published have the shorter legend

*BACIAΣYC OOHMO KAAΦICEC.*

The reverse is normal showing Shiva and his Bull and the normal Kharoshthi legend found on both gold and copper coins :—

‘Maharajasa Rajadirajasa Sarvaloga Isvarasa  
Mahisvarasa Vima Kathphisasa Tradara.’

( 7 N. )

The second coin described is an extremely rare stater of Huvishka showing on the obverse the King riding an elephant to the right and on the reverse a standing figure of the goddess Ardochsho. It is interesting to compare the obverse of this coin with that of the Kadphises stater just described. The latter is a far more spirited composition showing the elephant pacing along ponderously and the King sitting with nose up-turned in a truly royal manner. On the Huvishka coin, the King appears to be far too afraid of slipping off backwards and the elephant, in addition to losing all its imposing dignity, has been given a tail that looks ridiculously like a pipe-cleaner.

The reverse of this Huvishka coin shows the goddess Ardochsho dressed in a very ornate manner with a richly-embroidered inset down the front of her robe and an equally rich hem round the bottom. This figure is identical with the very rare Ardochsho staters of Kanishka. The only comparable figure among the many gold types of Huvishka is one of Nana whose robe is equally ornate on a stater with the King seated cross-legged on clouds (B.M.C., XXVIII, 10).

These two coins with Ardochsho and Nana reverses are closely connected by the obverse legend

*PAONANOPAO OOHPKO KOPANO PAO*

which differs from all other coins of Huvishka both in the termination of the name *OOHPKO* for *OOHPKI* and in the final *PAO* in the legend, meaning 'Of the King of Kings, Huvishka, King of the Kushan' instead of 'Of the King of Kings, Huvishka, the Kushan'. There is another specimen of this Elephant-rider coin in the British Museum but on it the final *PAO* is not so clearly apparent and was not noticed by Professor Gardner, Mr. C. J. Brown or Professor Herzfeld, all of whom have omitted it in their descriptions of the coin.

The third coin I wish to publish is a unique stater of the late Kushan King Kaneshko.

The coin is broad and slightly cupshaped, the obverse shows the usual type of the King standing at an altar and the reverse shows the figure of a goddess with a lunar crescent behind her shoulders seated full-face on a lion which crouches left. The goddess holds noose and sceptre and has folds of drapery flowing over her feet. Unfortunately her name, in debased Greek characters, appears illegible. It probably commences with the characters *NWN*...and immediately reminds one of the Huvishka coin (P.M.C., XX, No. X) which shows the goddess Nana riding a lion to right. The reverse is, however, far more reminiscent of the coin of Chandragupta and Kumāradevi which shows a goddess with cornucopiæ seated on a lion crouching right, the drapery flowing over the

feet of the goddess in an identical manner. On other Gupta coins (e.g. I.M.C., XV, 6), Vincent Smith says the feet of the goddess rest on a lotus. I am however inclined to believe it is not a lotus but merely folds of drapery.

M. F. C. MARTIN.





309. NOTE ON A GOLD TOKEN OF KUMĀRAGUPTA I  
(A.D. 414-55).

While re-arranging certain gold coins in the cabinet of the Provincial Museum, Lucknow, I came across five thin pieces having the reverse side blank and two holes pierced at top probably intended for suspending them.

On close inspection, one appeared to bear a fine inscription, the other a standing figure of a king with a Garuḍa standard and the rest three a standing figure of some goddess by the side of a bull.

I exhibited them at the Annual Meeting of the Numismatic Society of India, held at Patna in December, 1930, and read a short descriptive note. I propose to publish it with a view to bring them to the notice of other numismatists who may be able to throw more light on them.



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No. 1 is a thin circular piece of the size of .8 inches, cut out from a thin sheet of gold weighing 19 grains and represents a token of Kumāragupta I. Inside a beaded circle and in the upper half of the coin we see Garuḍa in the usual attitude with his wings spread out. To his right are a crescent and

an oval object encircled by dots which perhaps stands for the Sun.

Below, separated by a distinct line, is an inscription in fine Brāhmi characters which reads 'Śri Mahendrādityaḥ'. Below is a cluster of seven dots and the letter *ru* which is not met with so far. Coins of Kumāragupta I bearing titles Śri-Mahendraḥ, Śri Kumāraguptaḥ, Śri-Aśvamedha Mahendraḥ, Ajit-Mahendraḥ, Śri Mahendra Sinha, Sinha-Mahendraḥ, Mahendra Kumāraḥ, and Śri-Pratāpaḥ are known in gold. Kumāragupta's name as Mahendrādityaḥ appears on his silver and silver-plated coins, but these are smaller in size and proportionately heavier in weight. Our specimen is larger in size (·8 inches) and lighter in weight (19 grains). Besides, the entire surface including the inscription seems to have been beaten out.

No. 2 is a thin circular piece stamped with a device showing inside a beaded circle, a figure of the style of King Samudragupta as shown on his coins of standard type. The king stands facing to left and holds a bow in the left hand. The Garuḍa standard is to his right. On his left appears the letter—which probably stands for the initial of the ruler. Weight 12 grains, size ·9 inches.

Nos. 3-5. These three tokens show some goddess (perhaps Pārvatī) standing by the side of a bull inside a beaded circle. The idea seems to have been borrowed from the coins of Vāsu-deva, Śiva and bull type. These might have been worn as charms to ward off the evil eye. They weigh 12-14 grains and measure ·8-·85 inches.

PRAYĀG DAYAL.

### 310. SOME RARE GUPTA COINS.

The commonest coins in the gold series of Chandragupta II are those of the Archer Type, Lotus Reverse. But no representation of this type in copper is known, all the known specimens, with the exception of some very small coins, having on the reverse Garuḍa standing facing. It seemed strange indeed that such a popular type should be entirely absent in the copper series. However, this missing link has now been established by the discovery of a copper coin of the Archer Type of Chandragupta II now in my possession. It exactly follows the gold Archer Type of Chandragupta II, Class II, Var. b, as described by Mr. Allan in the British Museum Catalogue of Gupta Coins. The find-spot was Rājgir.

A detailed description is given below :—



Size :  $\text{Æ}$  .8".

Wt. : 5.46 grammes or 84.3 grains.

*Obv.* : King l., nimbate, holding bow in l. hand and arrow in r. hand. Garuḍa standard bound with fillet on l. 'Chandra' on r. under l. arm between his body and bow-string.

Legend, '...ja śrī cha ....' only legible.

*Rev.* : Goddess (Lakṣmī) nimbate, seated facing on lotus, holding fillet in outstretched r. hand and lotus in l. hand which rests on knee ; no border.

Symbol...to l. Legend, 'Śrī Vikkramaḥ' to r.

This is a hitherto unrecorded sub-variety of the Lion-Slayer type of Chandragupta II.

While the obverse die is quite distinct from other coins, the chief peculiarity is on the reverse, as the goddess holds the lotus and fillet but there is no symbol.

Size :  $\text{A}$  .8".

Wt. : 119.2 grains.

*Obv.* : King standing to r., wearing waistcloth with sash which floats behind him, ornamental head-dress and jewellery, in the attitude to shoot an arrow into the mouth of the lion which falls backwards

and trampling on it with l. foot, his r. foot placed in front of the legs of the lion.

Traces of the legend are visible which is perhaps similar to Class I of the B.M.C.

*Rev.* : Goddess nimbate, facing to l., astride of lion couchant to l., holding fillet in outstretched r. hand and lotus with long stalk in l. hand which rests on hip ; border of dots.

No symbol. Legend, ' *Sinhavikramah* ' to r.

P. S. NĀHAR.

### 311. AN UNPUBLISHED ĀNDHRA COIN.



It is now some years since I picked up in the old city of Haidarābād (Deccan) an old Āndhra coin, which I describe below, as it has turned out on enquiry to possess certain marks or characteristics which have not been observed in this class of numismatic records.




Metal : Potin.

Size : 0·7 inch.

Weight : 100 grs.

Obv. : Swastika  in high relief with an inscription in low relief over it  **LVC** .....

Rev. . Thunderbolt  in a circle of dots. No inscription.

The coin has a cracked edge and the impression of the edge of the die is clearly visible just above the inscription. This indicates that the coin was struck and not cast.

As I was unable to read the legend and could not trace in the Catalogues available to me any coin bearing an exact resemblance to my find, I sent a description and casts for publication in the *Indian Antiquary* to its Joint Editor, Mr. C. E. A. W. Oldham, C.S.I., who advised me to refer the matter to the Honorary Secretary of the Numismatic Society of India. Prof. Hodivālā has now sent me an interesting note on the subject which has been written by Mr. G. V. Āchārya, Curator of the Prince of Wales Museum, Bombay. Mr. Āchārya observes that the coin is in some respects new and that he does not remember to have seen any specimen exactly like it. A Swastika in high relief is found on the cast coins of Ujjain and Eran (Cunningham, C.A.I., Pl. X. 11, and XI. 20), but then there is no thunderbolt, either on obverse or reverse. A thunderbolt is stamped on the coins of the Kshāharāta Bhumaka and Nahapāna (Rapson's Catalogue, Pl. IX. 237-250), but the Swastika is there conspicuous by its absence. Mr. Āchārya reads the legend thus :

*Mā ra [or Nā ra] Chuṭuka.*

The coins of Chuṭukulānanda have been described by Rapson (*op. cit.*, Pl. VIII, 235). They were found in Kārwar,

North Kanara District. The fragmentary legend on this coin shows that it is a new variety of the monetary issues of the Āndhra King Chutukulānanda.

HURMUZ.

### 312. COINS OF EMPEROR MALLIKĀRJUNA OF VIJAYANAGARA.

While going through Karnātaka one often comes across small gold coins of the size of the Vijayanagara *varāhas*. They bear an elephant walking to the right on the obverse ; and on the reverse a floral scroll.

Among the people of the country they are known as Gajapati or Aneṅḍi coins. The first denomination is only given on account of the *gaja* represented on the coins ; on no account because they are coins of the Gajapati kings of Orissa, as a non-expert might be inclined to think.<sup>1</sup> The fact that these coins are always found in Karnātaka and never in Orissa seems to be quite a sufficient proof to attribute them only to kings that ruled over the former country.

As regards the denomination of Aneṅḍi, the question does not seem so clear. Aneṅḍi lies to the north of Karnātaka, and I have found such coins in the country round Aneṅḍi, for instance at Gadag and Bellary. Some Kanarese MSS. discovered by Mr. M. H. Rāma Sharma a few years ago ;<sup>2</sup> and at the same time other Telugu MSS. unearthed from the Government Oriental Manuscript Library, Madras, by Dr. N. Venkata Ramanayya<sup>3</sup> seem to give some foundation to this theory of Aneṅḍi coins, for there were at least two kings at Aneṅḍi, Kampila and Rāmanātha, whose main fort was at Kummata.<sup>4</sup> Yet I am inclined to believe that the denomination of Aneṅḍi coins is a popular denomination no less than that of Gajapati coins. *Ane* also means elephant in Kannada. Hence the coins seem to have received this denomination on account of the elephant struck on their obverse.

Elliot and Rapson and other numismatists attribute such coins to the Cēra Kings of Kongudēsa. Their main reason seems to be that the *lānchana* of the Cēra dynasty is the elephant.<sup>5</sup> In order to confirm his statement Elliot publishes a cast of a seal of a Cēra copperplate where an elephant *passant* to the right is carved.<sup>6</sup>

Granting that the elephant was the *lānchana* of the Cēras, it does not follow that any coin bearing an elephant *passant*

<sup>1</sup> Wilson, *Description of Select Coins*, referred to by Bidie, *The Pagoda or Varaha Coins*, J.A.S.B., 1883, pt. 1, p. 40.

<sup>2</sup> Rama Sharma, *The Kingdom of Kampila*, J.B.H.S., II, pp. 201-208.

<sup>3</sup> Venkata Ramanayya, *Kampila and Vijayanagara*, pp. 1-19.

<sup>4</sup> Rama Sharma, *Vestiges of Kummata*, Q.J.M.S., XX, pp. 261-270.

<sup>5</sup> Elliot, *Coins of Southern India*, p. 116, pl. III, Nos. 118 and 119 ; Rapson, *Indian Coins*, p. 36, pl. V, No. 12 ; Bidie, *The Pagoda or Varaha Coins*, J.A.S.B., 1883, pt. 1, p. 40.

<sup>6</sup> Elliot, *op. cit.*, pl. III, No. 120.



is a coin of the Cēras, for other dynasties like the Gangas of Mysore had also a walking elephant as their *lānchana*. Moreover Rapson himself admits that the Cēra emblem is a bow;<sup>1</sup> and accordingly he and also Elliot classify as Cēra coins a number of copper coins showing a bow and an arrow.<sup>2</sup> Such symbols are not seen at all on the so-called Gajapati coins.

Moreover in connection with the attribution of these coins two things must especially be considered, viz. the internal technique and perfection of the coin and the place where the coin was found.

As regards the first, the coins called Gajapati or Anegonḍi show a technique evidently posterior to the 12th century. Before this date all the gold coins of the different dynasties in Southern India were thin pieces of metal, first struck on one side and cup-shaped, then struck on both sides. Such are the coins of the Pallavas, Chalukyas, Kadambas and other dynasties that ruled over South India. The first thick, stumpy gold coins appear in Karnāṭaka in the 12th century. Such are the coins of Vishṇuvardhana of the Hoysaḷa Dynasty (1104–1141), and also some coins of Jayakēśi II, of the Goa Kadambas. Two coins of the former are described by Elliot as coins of the Yādavas of Dvarasamudra.<sup>3</sup> In the Coin Cabinet of the Indian Historical Research Institute there is another coin of Vishṇuvardhana different from those of Elliot. The stumpy coins of Jayakēśi II were first described by Prof. George M. Moraes in his book on *The Kadamba Kula*.<sup>4</sup> The coins of these two kings may be, as Moraes says, considered as the forerunners of the Vijayanagara *varāhas*. Now the Cēras were defeated by the Chōḷas in about 878 A.D.,<sup>5</sup> and were totally extinguished by the military power of Vishṇuvardhana Hoysaḷa.<sup>6</sup> Their period therefore was much too early for this late type of coins.

Moreover the country ruled by the Cēras in Karnāṭaka was the present Salem and Coimbatore Districts and part of the western side of the Mysore State. But these *tankas* with the elephant are found all over Karnāṭaka, and especially in the Dharwar and Bellary Districts.

About the perfection of these coins a simple comparison with the coins of the Mysore Gangas, that also bear an elephant, will show the difference in the execution of the figure of this animal. The elephant of the Gajapati coins fully resembles the elephants placed at the entrance of temples and maṇḍapas

<sup>1</sup> Rapson, *op. cit.*, p. 36.

<sup>2</sup> Elliot, *op. cit.*, pl. III, Nos. 121–128. In the Coin Cabinet of the Indian Historical Research Institute we have a number of these copper coins also.

<sup>3</sup> Elliot, *op. cit.*, pl. III, Nos. 90 and 91.

<sup>4</sup> Moraes, *The Kadamba Kula*, p. 383.

<sup>5</sup> Foulkes, *Manual of the Salem Collectorate*, I, p. 37.

<sup>6</sup> Coelho, *The Hoysaḷa Vamśa*, pp. 76–78.

in the Hoysala and Vijayanagara periods, for instance in the Madhukēśvara temple at Banavāsi or in the Viṭṭhalaswāmi temple at Vijayanagara.

Finally the abundance of such coins also suggests a relatively late period. Very few coins of the early Kadambas, Chalukyas, Gangas and even of the Hoysalas are found when touring Karṇāṭaka; while the so-called Gajapati coins are as common as those of Vijayanagara.

This latter circumstance makes one think that these coins belong to the Vijayanagara period.

The coins of the Vijayanagara Emperors show a great variety of designs, greater perhaps than that of any other Indian Dynasty excepting the Guptas. From the time of Bukka I, who struck the first Vijayanagara *pagodas*,<sup>1</sup> down to the time of Raṅga III, an interesting series of deities, animals, and mythological beings is seen in their coins: Śiva and Pārvati, Lakshmi Narayana, Veṅkatēśa, Kāliya Krishna, Viṣṇu and his two consorts, Rāma and Sitā, Durgā, Hanumān, Gaṇḍa-bheruṇḍa (walking and rampant), a boar, a bull, a deer, form a varied galaxy of numismatic emblems. It is my opinion, founded on the above reasons, that these Gajapati coins also belong to the Vijayanagara period. The question that now remains is this: To what emperor must these coins be attributed?

There is a Vijayanagara Emperor of the first Dynasty, Emperor Mallikārjuna, who seems to have had a special predilection for elephants. He is said to have been 'pleased to institute the elephant hunt';<sup>2</sup> to have 'witnessed the elephant hunt',<sup>3</sup> and to have been 'pleased to witness the elephant hunt'.<sup>4</sup> Moreover the previous and subsequent kings have a boar engraved on the seal attached to their copperplates. Mallikārjuna placed an elephant on his signet. In the Museum of the Indian Historical Research Institute there is a set of copperplates of this Emperor having the elephant signet.

I suggest that these Gajapati or Anegoṇḍi coins should be attributed to Emperor Mallikārjuna. The reasons may be summarized as follows:—

- 1st. Similarity in shape with the coins of the Vijayanagara Emperors.
- 2nd. Elaborate design and decorations of the elephant, that may be compared only with the elephants carved in the Hoysala or Vijayanagara temples.
- 3rd. These coins are as abundant as the coins of Vijayanagara.

<sup>1</sup> Cf. Heras, *Beginnings of Vijayanagara History*, p. 47.

<sup>2</sup> Rangacharya, *Inscriptions*, II, p. 1261.

<sup>3</sup> *Ibid.*, I, p. 81, No. 398, p. 174, No. 383; II, p. 1188, No. 211.

<sup>4</sup> *Ibid.*, III, p. 1595, No. 710.

- 4th. They are found all over Karnāṭaka, and specially in the districts of Bellary and Dharwar, that is round the ancient capital of the Empire.

These reasons suggest that the coins under study belong to the Vijayanagara Empire. The fact that an elephant is represented on their obverse seems to point to Emperor Mallikārjuna as explained above.

There are several types of these coins. Studying the specimens existing in the Coin Cabinet of the Research Institute, as well as the plates in different catalogues and works on numismatics, a series of different types may be formed. The main characteristic that differentiates these coins are the garlands that adorn the elephant. These garlands are different in number and in form. The number varies from three to six. The form of the garlands is double : some are represented as a continuous line, while others are shown as a dotted line. Sometimes with the same number of lines different combinations are made resulting in the existence of some varieties under the same type. Thus the following chart has been prepared : -

| Types | Description | Varieties | Specimen                                  | References                                                                                            |
|-------|-------------|-----------|-------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1     | 3 garlands  |           | .... -<br>- -                             | Elliot, <i>Coins of South India</i> , pl. III, No. 118.                                               |
| 2     | 4 garlands  | Variety A | .... .<br>... .<br>- -                    | I.H.R.I. Com Cabinet, Rapson, <i>Indian Coins</i> , pl. V, No. 12.                                    |
|       |             | Variety B | - -<br>... .                              | Brown, <i>Coins of India</i> , pl. VII, No. 5.                                                        |
|       |             | Variety C | .....<br>... .<br>... .                   | I.H.R.I. Com Cabinet, Elliot, <i>op. cit.</i> , pl. III, No. 19; J.A.S.B., 1883, pt. 1, pl. 1, No. 7. |
| 3     | 5 garlands  |           | .....<br>.....<br>- - -                   | I.H.R.I. Com Cabinet.                                                                                 |
| 4     | 6 garlands  |           | - - -<br>.....<br>.....<br>.....<br>- - - | I.H.R.I. Com Cabinet; <i>Indian Museum Catalogue</i> , I, pl. XXX, No. 18.                            |

On the reverse of all these coins there is a floral scroll, which by some authors is said to be perhaps the tail of a peacock. It is true that on many occasions the tail of a peacock is represented in this way in South Indian sculpture. But one never sees the tail of a peacock separated from the bird. Hence it seems evident that this pattern merely represents a floral design. About this design Elliot says the following :—

‘The earliest design on the reverse (of South Indian coins) is that of an elegant floral or arabesque pattern, whence perhaps the name of *p’hulihun*=flowery pagoda was derived. It appears to have been very generally adopted, for it is found on the coins of Chalukya, Cēra, etc. The oldest example of this device with which I am acquainted is that figure in the Madras Journal, Vol III, N.S., pl. VIII, fig. 30, from an example in the Madras Government Museum.’<sup>1</sup>

Among the specimens bearing scrolls with which I am acquainted, the earliest seem to be two Banavāsi Kadamba coins. One—probably the earliest of the two—clearly shows the flowers and leaves in the scroll.<sup>2</sup> The other shows no flowers and leaves; only the curved and complicated lines of the scroll are seen.<sup>3</sup> After this we must mention the scroll of a coin which is classified as early Chalukya by Elliot,<sup>4</sup> but it is evidently a coin of the later Chalukyas, considering the size and thickness of the coin. Strange to say, the scroll is once more showing the flowers and leaves of the old Kadamba coins. This nevertheless seems to be the last time these flowers appear in such a design. After this, the two coins of the Hangal Kadambas that bear it are purely line scrolls similar to that of our coins of Mallikārjuna.<sup>5</sup> There is moreover a strange not yet identified coin, published by Elliot, that bears this pattern;<sup>6</sup> a specimen of it is also in our Coin Cabinet. It also seems to belong to a later period, probably to the period of the Vijayanagara Emperors.

Elliot speaks of *fanams* bearing an elephant corresponding to these elephant pagodas; and he affirms that they are as common as these pagodas.<sup>7</sup> Nevertheless from his description it seems that he confused these *fanams* with the Ganga *fanams* and the coins of Mysore, all of which bear an elephant walking. In point of fact the *fanams* corresponding to these *varāhas* under study are very rare. I have not seen such *fanams* in any collection of coins, nor have I found them described in

<sup>1</sup> Elliot, *op. cit.*, p. 55.

<sup>2</sup> *Ibid.*, pl. I, No. 13.

<sup>3</sup> *Ibid.*, No. 14.

<sup>4</sup> *Ibid.*, No. 21.

<sup>5</sup> *Ibid.*, pl. II, Nos. 67 and 70. The Coin Cabinet of our Indian Historical Research Institute possesses a coin similar to the latter.

<sup>6</sup> *Ibid.*, pl. I, No. 18.

<sup>7</sup> Elliot, *op. cit.*, p. 116.

any work on numismatics. Fortunately I could obtain one such *fanam* at Gadag for the Coin Cabinet of the Indian Historical Research Institute. The elephant of the obverse is totally similar to the elephant of the *varāhas*, but the garlands and other ornamentations are thoroughly worn out. The reverse has the ordinary scroll not as big as the coin is, but much smaller, occupying only the centre of the coin. The scroll itself seems to be a little different. One of the curved lines ends in a big leaf, which practically covers the whole of the scroll.

The weights of the five coins of the Indian Historical Research Institute described above are as follows :—

|                          |             |
|--------------------------|-------------|
| Type 2, Variety A.....   | 60 grains.  |
| Type 2, Variety C' ..... | 59½ grains. |
| Type 3 .....             | 59½ grains. |
| Type 4 .....             | 57 grains.  |
| Fanam .....              | 5½ grains.  |

H. HERAS, S.J.



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### 313. SOME RARE COINS IN MY CABINET.

#### 1(a) *Muhammad Shah I. Bahmani.*

AR. Mint, Ahsanabad ; Date 761 A.H.

No silver coin of this Dynasty weighing 112 grains is known and this evidently is a half Tanka. Considering that the highest known weight of silver coins is 170 grains, the average weight of a half Tanka should be about 85 grains, but this coin is above that probable average. Again, there is a silver coin which weighs 54 grains and if this is taken to be a quarter Tanka, the coin under review, which is about double the weight of that, may be considered as a half Tanka. (For weights of Bahmani coins, *vide* N.S. XXXIX, Article 261.)

The legend on the coin also differs slightly from that found on full Tankas of Muhammad Shah I.

#### (b) *Muhammad Shah II.*

AR. Mint, Ahsanabad ; Date 784 A.H.

This is an interesting coin of Muhammad Shah II, dated 784 A.H., as no coin of this king, dated earlier than A.H. 791, has as yet been discovered (*vide* foot-note on No. 27 of N.S. XXXVII, Article 234).

#### 2. *Islam Shah Suri.*

A/ Wt. (looped) ; Size .95.

Mint-less type ; Date 957 A.H.

##### *Obverse.*

In square the Kalima.

Margins—

Lower (الانكرو) الصداق

##### *Reverse.*

اسلام شاه ابن

شهر شاه سلطان

خاد الله ملكه ٩٥٧

Below श्रीसलामसाहि

Margins—

Left السلطان العادل

Upper ٩٧٧ M. ☆

#### 3. *Jalaluddin Akbar.*


AR. Wt. 173 ; Size .95.

Mint, Anwala (Aonla) ; Date 982 A.H.

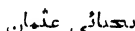
( 23 N. )



*Obverse.*

In square, knotted at corners with shallow arch in centre of each side, the Kalima. M. 

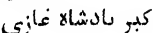
Margins—


Upper  عثمان

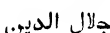
Right  علم على

*Reverse.*

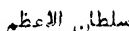
In square.

 اکبر بادشاه غازی

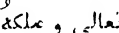
 ۹۸۲

 جلال الدین

Margins—

Right  سلطان الاعظم

Upper  خلد الله

Left  تعالی و ملکه

Lower  صوب انوله

This is an unpublished mint of Akbar.

4. *Nuruddin Jehangir.*

A/ Wt. (looped) : Size 1·0.

Mint, Agra ; Date 1019-5.

*Obverse.*

In ornamental diamond, within triple circle, middle one of dots, with linked double heart design

(  ·  =  ) and

ornaments in the intermediate spaces. On flowered ground.

 اکبر

 شاه

 ابن

 جهانگیر

 زمان شاه


 شهنشا

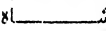
 ۱۰۱۹-۵


 سنه

*Reverse.*

Same as obverse on flowered ground.

 بحر و بر

 شاه

 زد در ماه

 سکه ادر

 باقره

(سکه زد باقره در ماه ادر شاه بحرو بر شهنشا زمان شاه جهانگیر ابن شاه اکبر)

This is a new type of Agra Mint of Jehangir.

The couplet is also new.

5. *Shah Jehan I.*

A/ Wt. 165 ; Size '8.

Mint, Akbarabad ; Date (10) 39-2 ?

*Obverse.*

On flowered ground.

صدق انى بكر و عدل  
 —————  
 لا اله الا الله الله ۳۹ (۱۰)  
 محمد رسول الله  
 با زرم عثمان و علم

*Reverse.*

On flowered ground.

بادشاه غازى  
 الدين محمد شاه حيان  
 صاحب قزان ثانى شها  
 —————  
 مصر  
 اكبر آباد

No gold Muhr of this type from Akbarabad Mint has been published, though rupees of similar type are known.

6. *Jahandar Shah.*

AE. Wt. 213 ; Size '8.

Mint, Bahadurgarh ; Date 1124 A.H.

*Obverse.*

جهاندار شاه  
 —————  
 فلوس ۱۲۴ (۱)

*Reverse.*

جلوس  
 —————  
 ضرب  
 (بها) درگده

This is a copper coin from one of the rare mints of Jahandar Shah; only gold and silver coins of this mint are known.

7. *Ahmad Shah Bahadur.*

AR. Wt. 174 ; Size '85.

Mint, Qamarnagar ; Date ?.

*Obverse.*

محمد بهادر (ز)  
 —————  
 بادشاه غاز  
 —————

*Reverse.*

(ما) بوس  
 —————  
 ميمند  
 سنه  
 جلوس  
 —————  
 مصر  
 قمر نگر

This is an unpublished mint of this Emperor.

## 8.

N. Wt. 170 ; Size '95.

Mint, Haidarnagar ; Date 1180 A.H. 7R.

*Obverse.*

Within triple circle, middle  
one of dots and on dotted  
field.

شاه عالم را  
۸۰  
بادشاه عار  
مسکه منار

*Reverse.*

On dotted field same as  
obverse.

۷  
سند خلوس  
مہنت  
مانوس ضر  
حدر نگر

Bednūr, known also as Nagar, is a town in the Nagar Taluk of Shimoga District, Mysore, situated 13° 49' N. and 75° 2' E., about 55 miles west of Shimoga town. It was at one time called Haidarnagar after Haidar Ali who intended to make it his capital after his capture of the place in 1176 A.H. He had given orders for the erection of a Royal Palace (Shahi Mahal), a naval Arsenal (Silāh Khāna), and a mint (Daruz Zarb) and had also ordered the construction of an harbour to open the port for trade. The whole project, however, was abandoned on account of certain rebellions, and Haidar's court was transferred to Seringapatam, which afterwards became the capital (*vide*, *Imperial Gazetteer of India*, 1908, Vol. XVIII, page 181, and also 'The Tarikh-e-Bijapur' by Bashiruddin Ahmad, page 299).

There are two gold Muhrs in my cabinet having the mint name Bahadur Pattan (119ۛ—15 and 11ۛۛ—17), and one silver com of Arcot (1195-17) which have Haidar's initial ح on the reverse. There can be no doubt that these coins were issued by Haidar Ali, as they resemble in style those issued by the French and English East India Companies in the name of Shah 'Alam II, but the coin under review has no similar initial of Haidar. The initial was probably omitted on early issues.

It is very surprising to learn that Haidar Ali ever issued coins in the name of the Mughal Emperor, as he and his son Tipu Sultan never acknowledged the supremacy of those Emperors. The fact, however, is borne out by the coins of Bahadur Pattan Mint mentioned above. Two similar coins are also in the British Museum, but so far no such coin of Tipu Sultan has been discovered.

P. S. TĀRĀPORE.



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### 314. SOME UNPUBLISHED COINS OF THE GAIKWARS.

In accordance with a resolution of the Numismatic Society of India passed in 1910, Dr. G. P. Taylor contributed a learned article on Baroda coins two decades ago to the *Numismatic Supplement No. XVIII of the Asiatic Society of Bengal*. No further light was thrown after this scholarly treatise, on these coins until the publication of Vol. IV of the *Catalogue of Coins in the Indian Museum*, Calcutta, in the year 1928 when some other types were brought to our notice. In Part III of this Catalogue of Native States, in his introductory remarks, Mr. W. H. Valentine made mention of a few more types of Sayajirao II unrepresented in the above-named collection.

While examining Prof. S. H. Hodivala's collection of coins purchased last year for the Prince of Wales Museum, Bombay, I came across some new types of the Gaikwars of Baroda besides many other rarities. While arranging them along with those already in the Cabinet of the said museum, I found many more. All these coins form the subject-matter of this paper.

To see if any other interesting specimens could be found, I examined the large collection of coins in the Indian Historical Research Institute of Bombay and picked out all Baroda coins from the lot, of which some proved useful in determining doubtful readings. Mr. R. H. Gadgil also kindly placed at my disposal the estampages of coins of Baroda State which were in his possession. These also helped me a good deal in my study. With expressions of gratitude to the owners of the above collections, I now proceed to describe the coins along with my observations.

All copper coins described in this paper belong to the Coin Cabinet of the Prince of Wales Museum, unless otherwise mentioned.

ANANDRAO.

A.H. 1215-1235.

A.D. 1800-1819.

1. *Obv.*: Legend in double striking upside down in two halves of this coin is only fragmentary, but from what can be made out it appears to be Shah Alam's legend as follows :-

شاه عالم  
بادشاه عار  
 سکه مبارک

( 27 N. )

*Rev. :*

جلوس صیمنت

❧

The letter ❧ and a portion of the Gaikwar's scimitar is an indication of its being a coin struck by Anandrao. The crudeness of letters and Shah Alam's legend show that it was struck by Anandrao in his earlier years (before 1820) when he was contemporary with Shah Alam II. Here the letter ❧ is also written in a different way. The scribbling below the line is too crude to be read.

## SAYAJIRAO II.

A.H. 1235-1264.

A.D. 1819-1847.

Of all the Gaikwars, Sayajirao II seems to have issued a very large number of varieties of coins.

Almost every second or third year there is to be found a change in the mint marks or symbols,<sup>1</sup> which perhaps suggests the frequent change of mint masters who are generally responsible for such changes.

His coins can be roughly divided into two kinds :—

- (i) Coins issued from Baroda mint with the legend of Akbar II.
- (ii) Coins issued from Anreli fort with various symbols and marks.

## (i) BARODA COINS.

2. *Obv. :* Fragmentary legend representing.

اکبر شاه  
—  
بادشاہ

*Rev. :*

صیمنت

❧ M 1

سنہ ۲۰

ضرب

3. A similar coin in the collection of the Indian Historical Research Institute bears the Hijri date 1240 above د of بادشاہ on its obverse, which is quite in agreement with regnal year 20 on the reverse in coin No. 2.

<sup>1</sup> Drawings of these marks or symbols are appended at the end and in the body of the paper I shall only refer to their serial numbers.

4. Mr. Gadgil has a similar coin which slightly differs on its obverse. We see:—

اکبر شاہ  
۱۲۴۳ بادشاہ

Rev. :

صمیمت  
M 2  
۲۳

5. Obv. :

ہ عازے

Rev. :

م ۱  
۲۷ حد  
M 3 سنہ

6. Obv. :

کبر شاہ  
باد

Rev. :

م ۱ M 4  
۲۸

7. Obv. :

سنہ

شاہ  
شاہ

Rev. :

صمیمت  
M 5  
۳۰

8. Mr. Gadgil has a similar coin with year 1251 A.H. on the obverse.

9. Obv. :

(Traces of Akbar II's legend with the year 1253.)

۱۲۵۳

Rev. :

صمیمت  
M 5  
م ۱  
M 6

10. Obv. :

اکبر شاہ  
با



Rev. :

M 7

८१

M 8

## (ii) AMRELI COINS.

Dr. Taylor in the paper, referred to above, dealt with only the coins minted at Baroda which bear, as he has correctly observed, Akbar's legend on the obverse of the coins issued before the mutiny and the titles of the Gaikwar, viz. Sena-khaskhel Shamsher Bahadur of those issued after the mutiny. But this does not hold good in case of the coins issued from the mint at Amreli. The caligraphy of these coins is poorer and cruder than that of the Baroda coins. Before proceeding with the description of these coins let us refer to the location and history of the place.

At page 318 of the *Imperial Gazetteer of India*, Vol. V (1908), we find the following passage regarding Amreli town : 'Amreli is the headquarters of the Amreli Prant, Baroda State, situated in 21° 36' N. and 71° 15' E., 139 miles South-West of Baroda, 132 miles South-West of Ahmadabad, and about 10 miles from Chital, a station on the Bhavnagar Porbunder Railway. Population (1901) 17,977. The town is situated on a small river called Thebi, and is fortified by a wall at present in a ruinous condition. It is an ancient place, the former name of which was Amarvalli. The "juna kot" or old fort is now used for a jail.....'

On page 316 of the same volume we are told that the Maratha incursions in this part of the country were first made by Senapati Khanderao Dhabade and his lieutenant Damaji Gaikwar I, but it was not until the time of Damaji Gaikwar II (1732-68) that the greater part of this country was either laid under contribution or subdued. These conquests were, however, shared by the Peshwa by treaty in 1752-3. After Walker's settlement in 1807, the next significant event was that the Gaikwar's farm of the Peshwa's share terminated in 1814, and the Peshwa sent his own officers to collect tribute. This double government lasted for about four years. But after the downfall of the Peshwa's power in 1818, British Government became the paramount authority in Kathiawar, while the Gaikwar's administration was confined to his own possessions.

Thus we see that from the year 1818, that is to say the beginning of the rule of Sayajirao II, the Gaikwar had an undisputed claim over Amreli, and there is no wonder if he started another mint at Amreli for the issue of coins for circulation in this part of his dominions.

11. *Obv.* : स. गा above the elephant, etc. (i.e. M 10).

*Rev.* :

मिहंत  
१२५७  
सन्  
सुरामर

12. *Obv.* : Same as above.

*Rev.* :

१२  
सन्  
मुरली

13. *Obv.* :

श्री  
M 27  
सा. गा  
M 12

*Rev.* :

१२  
सन्  
M 11

Coins Nos. 14 to 21 are without dates and mints but all of them bear the initial letter स of Sayaji Gaikwar. Some of them unlike the other coins described above are thin and large pieces.

14. *Obv.* :

M 36  
M 26  
सा. गा  
M 31.

Below the scimitar (M 31) there is some crude scribbling which may possibly be a mint name. I doubt if it is Baroda.

*Rev.* :

मानुस  
लुस  
२०

15. *Obv.* :

श्री  
सा. गा  
M 27  
M 28

|                                   |   |                                                                                  |
|-----------------------------------|---|----------------------------------------------------------------------------------|
| <p>Rev. :</p> <p>عازے<br/>جلو</p> | } | <p>The arrangement is not<br/>readable but it may be</p> <p>جلوس بادشاہ غازی</p> |
|-----------------------------------|---|----------------------------------------------------------------------------------|

This is a thin and big piece.

16. *Obv.* : The same as No. 15 but M 29 is to be seen to the left of च।

*Rev.* : The arrangement on this coin also is like No. 15 but it presents some more letters which can not be satisfactorily read.

This too is a thin piece.

17. *Obv.* : I have not been able to read it. There is some crude lettering meant probably to represent the name of Sayajirao, and a scimitar like Mark No. 28.

*Rev.* : As crude as the obverse. It is probably an attempt at the Kalima above the line and the words Khas Khel below the line.

18. *Obv.* : Same as No. 15 above but this is a dumpy coin.

*Rev.* : Too fragmentary and crude to be read.

19. *Obv.* :

M 33  
च। ग।  
M 32

*Rev.* : Illegible.

20. *Obv.* :

च. ग।  
M 31

*Rev.* : Too bad an arrangement to be read.

21. *Obv.* ) Same as above but there is difference in thick-  
and ) ness and size.  
*Rev.* )

#### GANPATRAO.

A.H. 1264-1273.

A.D. 1847-1856.

22. *Obv.* : M 14 चौ M 21  
M 15  
गं. ग।

*Rev. :*

۱۲۶۶  
 مانوس  
 ۳  
 سنه  
 ضرب  
 مدهنت  
 قلعه امرتلى جلوس

Out of the whole lot this is the only perfect coin which gives three clear marks of a lotus representing Lakshmi—the Goddess of Wealth, No. 15—A Sun—the emblem of Predomination, a sword, as Dr. Taylor suggested for the title of Gaikwars Shamsheer Bahadur, thus combining the emblems of Finance, Administration and Army, with the letters औ, ग, and गा standing for the full name of the ruler Ganpatrao Gaikwar. The reverse gives us the third regnal year of the ruler himself and not the Mughal Emperor's (as in case of his coins of Baroda) with the corresponding Hijri date 1266. It also gives us the location of the mint in that town, the old fort (Qilaa Amreli).

23. *Obv. :*

औ  
 M 17  
 गा  
 M 21  
 (but point to the right)

*Rev. :*

M. 18  
 سنه

This too is a thin piece.

## KHANDERAO.

A.H. 1273-1287.

A.D. 1856-1870.

24. *Obv. :*

औ  
 M 20  
 गा. गा

*Rev. :*

جلوس  
 ۱۲۷۷  
 سنه

25. *Obv.* :

श्री

M 22

ख. ग

*Rev.* :

M 19

26. This is a thinner and bigger piece.

*Obv.* :

M 20

M 21

ख. गा

*Rev.* :

श्री

v

سنه

امرلی

The clear mint name on this coin and its similarity of the die with coins Nos. 24 and 25 shows that they are also coins from the Amreli mint.

It may be noted here that on this type of Khanderao's coin we see a number of varieties of twigs varying according to size and number of leaves. All of which are neither described nor illustrated here as they are of very little importance. They, however, show the development of the art of die making at Amreli. Besides the letters ख and ग are also inscribed in various ways. The first part of 'ख' that is 'र' is at times joined with the second part of it, that is 'ख' in various ways which is at times very confusing especially when the coin is not in a good condition or bears only a fragmentary legend owing to the irregularity of the shape and size which varies from a circle to an irregular quadrangle. But thanks to the collective hoard of about 50 coins that I had an opportunity of examining, all my doubts were cleared.

27. *Obv.* :

खाल

ضرب

*Rev.* :

M 20

M 21

28. Same as No. 27 with difference in the number of leaves in the twigs.

Both these coins (Nos. 27 and 28) are small dumpy pieces with खाल (Sal) in Gujrati characters instead of the usual سنه

(San) in Persian characters after the style of Cambay coins, which must have preceded the date on the die which is not to be seen on any of these coins.

29. *Obv.* :

سنا

ص خذل

*Rev.* :

(۱)۲۸۸

M 23

ضرب

و

This type of coin is known but I have chosen to include it in this paper not only because of a new date (i.e. 1288) of the ruler but also for an interesting historical incident behind it. This can be called a Posthumous Coin of Khanderao (in as much as Khanderao died in 1287 while this coin is dated 1288), and it was not by any mistake or negligence of the mint. A reference to page 279 of the *Bombay Gazetteer*, Vol. VII, enlightens us on the point. It says:—‘Almost immediately after Khanderao’s death (28th November, 1870), Her Highness Jamnabai informed Col. Bar that she was with child. Until, therefore, it could be ascertained whether the child to be was a boy or girl, Malharrao was held to be in position of a regent rather than in that of a sovereign prince. Her Highness Jamnabai was rightly or wrongly persuaded that her very life was in danger and as the time of her delivery drew near, she was permitted to take up her abode in the British Residency where she gave birth to a girl on the 5th of July, 1871, whom she named Tarabai.’ For about seven months, therefore, as it appears, Malharrao could not strike coins in his own name after the death of Khanderao.

### SAYAJIRAO III.

A.H. 1292—(Regent).

A.D. 1875.

Nos. 30 to 32 are coins of a similar type. They present different parts of the legend, and facilitate the decipherment of the complete legend which if taken collectively can be described as follows :—

*Obv.* :

M 34

M 38 and M 35

सा गा

१३१२

Rev. :

جلوس ۱۳۱۲

The dates on these coins are puzzling for the Hijri year to be seen in inverse is 1312, which falls within the regime of Sayajirao III and hence irrespective of its crude legend like older coins and in spite of much better coins being issued by this ruler, we have to attribute this coin to him. But the figure 88 does not agree either with the continuous regnal year of Akbar II or his own. Nor can it be a part of the Christian Era or the Samvat. The figure, therefore, leads us nowhere ; and hence the figure (88) has to remain unexplained for the present.

Now, I shall close after referring to a few coins which might well be called reappropriated ones, for originally they were struck by some one else and later on they were re-struck by the Gaikwars of Baroda. 'It was the practice of the last 2 or 3 Gaikwars', says the *Bombay Gazetteer* at page 135 of Vol. VII, 'to recall on his accession all the copper coinage of his predecessor and to coin his own coppers'. Here are some instances not only of the above but also of the reappropriation of coins of other States :—

33. This is a coin of Ganpatrao restruck by Khanderao.
34. This is an Indo-Portuguese coin restruck by Khanderao.
35. Bauswara coin restruck by Khanderao.
36. Bhavnagar coin (with 'बहादर') restruck by Malharrao.
37. Coin of the East India Company restruck by Malharrao.

R. G. GYANI.



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8<sub>a</sub>

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12



13



14



15



17









19



21



22



23



24



25



26



27



29



31







































32



37





|                                                                                     |                                                                                     |                                                                                    |                                                                                   |                                                                                   |                                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| 1                                                                                   | 2                                                                                   | 3                                                                                  | 4                                                                                 | 5                                                                                 | 6                                                                                 |
|  |  |  |  |  |  |
| 7                                                                                   | 8                                                                                   | 9                                                                                  | 10                                                                                | 11                                                                                | 12                                                                                |
|  |  |  |  |  |  |
| 13                                                                                  | 14                                                                                  | 15                                                                                 | 16                                                                                | 17                                                                                | 18                                                                                |
|  |  |  |  |  |  |
| 19                                                                                  | 20                                                                                  | 21                                                                                 | 22                                                                                | 23                                                                                | 24                                                                                |
|  |  |  |  |  |  |
| 25                                                                                  | 26                                                                                  | 27                                                                                 | 28                                                                                | 29                                                                                | 30                                                                                |
|  |  |  |  |  |  |
| 31                                                                                  | 32                                                                                  | 33                                                                                 | 34                                                                                | 35                                                                                | 36                                                                                |

List of marks noticed on the coins described in the paper 'Some Unpublished Coins of the Galkwars', by R. G. Gyni.



### 315. AURANGZEB'S SILVER COIN OF SANGAMNER.

While arranging Aurangzeb's coins in the Cabinet of the Prince of Wales Museum, Bombay, I found a silver coin of his 48th regnal year. The mint name, though not complete, is in all probability 'Sangamner' which, so far as I am aware, is a mint unpublished hitherto.

On the obverse of the coin the usual couplet of Aurangzeb's silver coins, viz. :

سکه زد در جهان چو بدر منیر      شاه اورنگ رب عالم گیر

is to be seen.

The legend on its reverse is as under :—

مانوس  
صمیت  
۱۷۰۸  
سنه جلوس  
مر  
سنگمند (ر)

It measures .85" in diameter and is 176 grains in weight.

The following extract from page 50 of Vol. 22 of the *Imperial Gazetteer* explains its location :—

'Sangamner town is the headquarters of the Taluka of the same name in Ahmadnagar district, Bombay, situated in 19°34' North and 74°13' East, 49 miles North-West of Ahmadnagar city'.

The Mughal occupation of this district lasted from 1636–1759. During this rule as it appears from the revenue settlements of about 1790 (*vide Bombay Gazetteer*, Vol. VII, page 738) Sangamner was the head of a Sarkar of eleven parganas and hence must have been important enough to possess a local mint. Aurangzeb might have struck coins at this mint towards the latter part of his rule when he had his headquarters mostly in this part of the country.

R. G. GYANI.



### 316. A PORTRAIT-MEDAL OF SHĀH 'ĀLAM II.

The beautiful portrait-medals which were struck by the Emperor Jahāngir in defiance of the law and custom of Islam have been hunted for high and low throughout the Indian sub-continent for nearly a century and many a coin-collector has coveted a specimen in vain. The rarity of these pieces is indeed so great that fancy prices have been sometimes paid for indifferently artistic imitations of dubious authenticity. It is also worthy of note that though the strenuous and ardent search of scores of enthusiasts in our own times has been rewarded by the discovery of many varieties and sub-varieties of the monetary issues of the Emperors of Delhi, not a piece has been found in any metal exhibiting either on obverse or reverse the effigy of any other of the Timurid Emperors of Hindustan. In other words, no other descendant of Bābur is known to have dared to stamp his own image either on gold or silver and imitated the example of the bacchanalian and free-thinking successor of Akbar. It may be therefore permissible to announce that a portrait-medal of another Mughal Pādishāh has been found.

This exceedingly interesting 'numismatic record' was brought to me in October last by a Lucknow jeweller who was anxious to have the somewhat unusual legend in the obverse margin deciphered and elucidated.



AR.

Size : 1·8 in.

Weight : 360 grs.

*Obverse* : Bust of the Emperor Shāh 'Ālam II to left, radiate, wearing turban with *tora* or jewelled ornament.



## Legend in margin.

\* ولادت در سنه ۱۱۴۰ جلوس در سنه ۱۱۷۳ بهال شد سلطنت ۱۲

'Birth in the year 1140 [H.];

Accession to the throne in the year 1173 [H.];

The Empire was confirmed in the 12[th year].'

Reverse :

سکه زد در هفت کشور سائۀ فضل اله حامی دین محمد شاه عالم نادرشاه

It is perhaps necessary to make a few remarks in connection with the three events which were, in the eyes of this Emperor, so auspicious and important that he thought it advisable or necessary to strike an extraordinary Medal with his own Portrait to commemorate them. It will be observed that these three events—his birth, his accession *de jure*, and his restoration *de facto* to the throne—are recorded upon it in true historical sequence and correct chronological order.

We are first told that the Emperor was born in the year 1140 A.H. It may be therefore pertinent to point out that this statement is borne out by the Mughal chronicles. According to the *Miftāhu-t-tawārikh*, the Prince 'Alī Gauhar was born on the 17th of Zī-q-'ad 1140 H., and his mother was the Begam Zīnat Mahal, better known as Lāl Kunwar. (Lucknow Lithograph, 1284 H., p. 343, l. 15.) *Vide* also Ghulām 'Alī Khān, Shāh 'Alamnāma.

During the latter part of the reign of 'Ālamgīr II, the Vazīr Ghāziu-d-dīn had kept the Prince 'Alī Gauhar in a sort of open arrest in the *haveli* of 'Alī Mardān Khān and had even talked of immuring him in the fortress or State-prison of Salīngarh. At last, he was able to escape and cut his way through the cordon of soldiers posted round his residence with a few faithful followers. At first he found refuge with Shujā'u-d-daula, the Nawāb of Oudh, and afterwards with Muhammad Qulī Khan, the Governor of Allahābād. 'Ālamgīr II was murdered on Thursday, the 8th of Rab'ī II, 1173 H.=29th November, 1759 A.C. (Historical Studies, p. 287). It was nearly a month before the news reached the Prince at his camp in Bihār and he was crowned at the village of Kanauti on Monday, 4th Jumād I, 1173 H. (24th December, 1759 A.C.). He afterwards issued orders that the initial date of his own reign should be reckoned from the day following that of his father's 'martyrdom', but the difference between the actual and official dates is really slight and immaterial for the purposes of this article.

It is common knowledge that his object in going to the Eastern Provinces was to secure a new footing for himself in those parts by wresting Bihār and Bengal from the hands of the English who had recently become, by a strange turn of fortune, the virtual masters of those territories. But his hopes and aspirations in that quarter were doomed to failure. His

own armies as well as those of his allies were repeatedly routed by those strangers and after a struggle which lasted for nearly six years, he was under the necessity of retiring to Allahābād and residing there as a pensioner of the all-powerful English Company. Here, says the historian Dow, 'he kept up the poor resemblance of a Court with a few ruined Omrahs, the ragged pensioners of his poverty, who still followed him in hopes of better days and burdened his gratitude with their presence'. (History of Hindostan, Ed. 1812, II. 355). It might have been well for him to have remained satisfied with the dependent but secure position of a pageant Emperor. But he was all the while suffering like others of his kind in a similar situation from a discontent which is not always 'divine'. He never ceased to long for the fleshpots of his old Egypt, and when any opportunity appeared to present itself of gratifying those desires and cherished wishes, there were never wanting in his entourage persons who for their own purposes, were only too willing to encourage them.

Meanwhile, Dehli and the restricted territory in its proximity was virtually governed by Najibu-d-daula, who had manfully held his own for a time against the Jat marauders under Suraj Mal. But the Mahrattas again made their presence felt in Northern India in 1769 A.C., eight years after their defeat at Pānīpat. They soon made themselves masters of the Central Duāb and occupied Dehli itself in the winter of 1770-1771 A.C. Najibu-d-daula was now dead and had been succeeded by his son Zābitā Khān, who offered little or no resistance to the invaders and secured his own safety by retiring to his stronghold of Patthargarh in the Bāwani Mahāl. His flight made it easy for the Southrons to negotiate directly with the *fainéant* who was only too anxious to be restored to the throne of his fathers. And as they were only too ready to acquire under the cover of his name a legitimate right or authority to domineer as the paramount power in Hindustan, the terms were soon arranged. The negotiations were covertly encouraged by Shujā'u-d-daula who had his own ends to gain by the Emperor's withdrawal from his territories. The English authorities when consulted, did their best to dissuade him from taking the inconsiderate step but left him to his own devices when they found that their warnings were unwelcome. The result was that he left Allahābād at some time in the month of May, 1771 A.C.=Muharram-Safar 1185 A.H. As the rainy season came on soon afterwards, he had to go into cantonments when he reached Farrukhābād. In his camp near that town, he was visited by Mahādji Sindia, the terms and conditions of his restoration were finally settled and a treaty signed and sealed by the contracting parties. On the cessation of the rains, he resumed his journey and the slowness of his progress was such that he was able to set foot in Dehli only on Christmas Day, 1771 A.C.=18th Ramazān 1185

A.H. This was the final consummation of his hopes and it was thus that after an exile of more than twelve years he returned to the palace of his fathers and took his seat for the first time on the throne in the Diwān-i-Khās.

The words *شده سلطان* leave no room for doubt that the medal was struck to commemorate this most auspicious and glorious event of his restoration. But we have also to note that the event is said to have taken place in the 12th year of the reign. Now the 12th year began *actually* on 4th Jumād I, 1184 A.H. (26th August, 1770 A.C. and terminated on 3rd Jumād I, 1185 A.H. (14th August, 1771 A.C.) or *officially*, on 9th Rab'ī II, 1184 H. (2nd August, 1770) and 8th Rab'ī II, 1185 H. (22nd July, 1771 A.C.). It follows that the medal was probably struck either on the day in May 1771—Muharram-Safar 1185 H. on which he held his last court in Allahābād or on the day, some two or three months later, on which the treaty was signed and sealed in the Imperial Camp near Farrukhābād. I think I ought to say that this historical note is mainly based on Keene's *Fall of the Mughal Empire* and Grant Duff's *History of the Mahrattas*

Andheri,

S. H. HODIVĀLA

4th January, 1933.

**A Note on the Biology of the Precipitating Action of the  
Mucus of Boro Fish, *Pisoodonophis boro*  
(Ham. Buch.).**

By SUNDER LAL HORA.

(Published with permission of the Director, Zoological Survey of India.)

In connection with my studies on the dry-season habits of an estuarine Gobioid fish, *Pseudapocryptes lanceolatus* (Bl. and Schn.), Professor J. Graham Kerr, F.R.S., suggested to me the investigation of the precipitating action of the slime of fish on mud held in suspension in the waters of the tidal creeks of the Gangetic Delta. Crude tests carried out both in the field and the laboratory by using slime-water extracted from several species of fish yielded interesting results. It was found that immediately following the addition of mucus or slime-water to the muddy water, small particles coagulated and began to sink down to the bottom. Of the species of fish studied for this purpose, the slime of Boro fish, *Pisoodonophis boro* (Ham. Buch.), was found to be most efficacious in precipitating mud. As the fish grows to a large size, and is easy to handle, two large specimens were obtained from the *Piali Nadi* at Uttarbhag and sent to Dr. J. N. Mukherjee, Khaira Professor of Chemistry in the University of Calcutta, for detailed chemical investigations of the properties of the slime. My sincere thanks are due to Dr. Mukherjee for arranging to have the investigations<sup>1</sup> carried out in his laboratories. For understanding the significance of the chemical properties of the mucous secretion of *P. boro*, the following observations on ecology and bionomics of the fish should prove useful.

In his account of the habits of *Lepidosiren paradoxa* Fitz., Graham Kerr<sup>2</sup> remarked that 'The mucous secretion of the skin of *Lepidosiren* appears to have a remarkable power of precipitating mud held in suspension in water. The mud of the Chaco is extremely fine and impalpable, and very muddy water required several hours of treatment with alum by the ordinary traveller's method before the mud was thrown down. A few live *Lepidosirens* put into a tank of the muddy water rendered it quite clear in a short time, the mud sinking to the bottom, and only a few flakes of mucus remaining floating about.' *Lepidosiren* is a Dipnoan fish which lives in the

<sup>1</sup> Raychaudhuri and Majumdar, *Journ. Asiat. Soc. Bengal* (N.S.), XXIX, pp. 275-283 (1934).

<sup>2</sup> Kerr, *Phil. Trans. Roy. Soc. London* (B), CXCI, p. 304 (1900).

swamps of the Chaco in South America ; it is of sluggish habits and wriggles about slowly at the bottom, but is capable of gliding rapidly through the mud and can burrow with great agility. During drought, the fish aestivates for long periods covered with a copious secretion of mucus. In India, several freshwater and estuarine species of fish<sup>1</sup> have acquired similar habits. The estuarine waters of the Gangetic Delta are heavily laden with silt and the tides keep the bottom mud thoroughly stirred up. The bottom consists of soft mud in which fish, crabs and other animals can burrow with great facility. It is of interest to note that a fairly rich fauna, which has undergone remarkable physiological and structural modifications,<sup>2</sup> is to be found in this peculiar *milieu*.

*Pisoodonophis boro* is an eel of the family Ophichthyidae and was originally described from the estuaries near Calcutta, but is now known to occur in seas and estuaries, and to ascend rivers above tidal limit ; its range extends from British India to the Malay Archipelago and Formosa. The species attains about three feet in length. Its air-breathing habits were described by Day<sup>3</sup>, and recently Ramakrishna Ayyar<sup>4</sup> has contributed a note on the burrowing habits of the fish and the damage it does to the agricultural fields along the Coromandel Coast.

*P. boro* lives at the bottom of muddy creeks, and, though common, is rarely found near the surface. At Uttarbhag specimens are captured during the ebb tide in small-meshed nets which are fixed to the bottom of the stream (plate 19, fig. 1) but large numbers can also be procured from the dry, but very soft, bed of the stream by digging for them at low tide (plate 19, fig. 2). The fish is not much sought after for food and is known as *Boroh Māchh* in the neighbourhood of Calcutta.

The burrowing habit of the *Boro* fish is well known to the fishermen of Lower Bengal. The pointed head of the fish with the snout projecting beyond the lower jaw, and the tubular nostrils pointing downwards and placed almost on the ventral surface of the head within the upper lip indicate how admirably the structure of the fish is adjusted for burrowing in the soft mud. Its eel-like body is beautifully adapted for this type of movement.

A young specimen of *P. boro* was brought to the laboratory and kept in a cylindrical jar filled with Uttarbhag mud and water. After some time, the fish was found in a burrow with its snout projecting slightly above the level of the water which

<sup>1</sup> Hora, *Journ. Bombay Nat. Hist. Soc.*, XXXVI, pp. 551-553 (1933).

<sup>2</sup> Kemp, *Rec. Ind. Mus.*, XIII, pp. 233-241 (1917) ; Sewell, *Rec. Ind. Mus.*, XXXVI, pp. 45-121 (1934).

<sup>3</sup> Day, *Journ. Linn. Soc. London (Zool.)*, XIII, p. 202 (1877).

<sup>4</sup> Ayyar, *Journ. Bombay Nat. Hist. Soc.*, XXXVI, pp. 276-278, pl. (1932).

was only half an inch deep. The most remarkable thing noticed was that the water was perfectly clear and had, with the exception of a few flakes of mucus, nothing suspended in it. The fish breathes under water as long as it can obtain enough air dissolved in water for respiratory purposes, otherwise it maintains regular aerial respiration by keeping its entire head out of water for fairly long periods. The fish may thus be kept alive for months together without any food or change of water.

Dr. S. Raychaudhuri and Mr. Bimalranjan Majumdar have observed that the pH of the clay suspension decreases from about 7.5 to 5.0 with the addition of slime-water, and that the slime-water has a definite sensitizing effect. I have observed that the amount of mud suspended ordinarily in half a pint of water of the *Piali Nadi* was precipitated by the addition of a drop or two of the mucous secretion in about 20 to 30 seconds. It is conceivable, therefore, that the sensitizing effect is much more rapid immediately near the secreting surface of the fish than at some distance from it. Though superficially enveloped in muddy water, the fish always lives in a comparatively clear water as the mud in its immediate surroundings is being continually precipitated.

It is probable that the chemical action of the mucus has a special biological significance. Fishes, that habitually live in clear water, are usually suffocated in muddy water, and in several parts of India advantage is taken of this fact for fishing purposes. By stirring the bottom mud, fishes are partly asphyxiated and then easily caught. It is also known that during exceptionally heavy floods, when the waters of small streams become very turbid and muddy, heavy fish mortality occurs.<sup>1</sup> Air-breathing fishes escape destruction while the water-breathing forms are suffocated by the mud or sand held in suspension in the water. For a part of the time, at least during high tides, *P. boro* lives submerged under water and has to depend for respiration on the oxygen dissolved in the water. In these circumstances, it is a distinct advantage if the mud is precipitated as soon as it comes into contact with the secretion of the body. By this device, the fish are continuously supplied with clear water. On the other hand when living in burrows at low tide, the mud is easily precipitated on account of the absence of current and the fish lives in clear water with probably only a small exertion on its part for producing the sensitizing mucus. The Uttarbhag mud is fine and sticky and its porous nature is due to the presence of a fairly large amount of colloidal and organic matter. It is distinctly alkaline and contains a fair quantity of calcium and magnesium salts as chlorides and sulphates.

<sup>1</sup> Chopra, *Journ. Asiat. Soc. Bengal* (N.S.), XXII, pp. 203-210 (1926).

## EXPLANATION OF PLATE 19.

### Habitat of *Pisoodonophis boro* (Ham. Buch.).

- Fig. 1—A tidal channel between a sluice gate and *Piali Nadi* at Uttarbhag, 24-Parganas, at low tide. Notice a net is stretched across the mouth of the channel to catch retreating fish. The soft mud in which *P. boro* burrows is clearly shown forming the banks of the channel.
- Fig. 2—A portion of the tidal channel between the Surjyapur Canal Lock Gates at Uttarbhag at low tide. Men are at work to deepen the channel by removing silt. In this operation several specimens of *P. boro* and other species of eels were captured. The man in the picture near the author is catching eels by turning over slabs of mud.



V. P. Sundhi, Photo.

FIG. 1.



D. Bagehi, Photo.

FIG. 2.

Habitat of Boro fish, *Pisoodonophis boro* (H.B.).





**A Note on the Chemistry of the Precipitating Action  
of Slime Water obtained from *Boro* Fish,  
*Pisoodonophis boro* (Ham. Buch.).**

By S. RAYCHAUDHURI and B. MAJUMDAR.

SENSITIZATION OF COLLOIDAL SOLUTIONS.

The term sensitization is used to denote the loss of stability resulting in suitable cases to precipitation of the colloid by means of small quantities of electrolytes or non-electrolytes. It is in some respects distinct from the usual precipitation by electrolytes. The protein solutions which have a well-known protective action on colloidal solutions in moderate concentrations sometimes sensitize colloidal solutions whose particles carry an electric charge of the same sign as those of the protein micelle ion.

If an albumin sol purified by dialysis is added to a  $\text{Fe}_2\text{O}_3$  sol also thus purified, a  $\text{Fe}_2\text{O}_3$ -albumin sol is obtained, which differs externally but little from the pure aqueous  $\text{Fe}_2\text{O}_3$  sol. The  $\text{Fe}_2\text{O}_3$ -albumin sol is a little more turbid than the original pure aqueous  $\text{Fe}_2\text{O}_3$  sol, but cannot be any more resolved in the ultra-microscope than the latter, but it differs by frothing on strongly shaking. Both the  $\text{Fe}_2\text{O}_3$  sol and  $\text{Fe}_2\text{O}_3$ -albumin sols are positively charged. The cataphoretic speed of the former is much greater than that of the latter. The charge of the former is therefore much greater than that of the latter. Now according to the theory of the flocculation of hydrophobic sols, a much smaller concentration of the active ion is necessary with a small charge on the particle. In a similar way the cataphoretic speeds of gold and silver sols have been found to be lowered upon addition of gelatine (Freundlich, *Colloid and Capillary Chemistry*, Eng. Ed. 1926). These are all cases of sensitization.

In biological and physiological literature we frequently meet with observations on the sensitizing action of non-electrolytes. Thus Meyerhop (*Biochem. Zeits.*, 1918, 86, 325) showed that if the disperse phase of the yeast press-juice is filtered off by means of an ultrafilter, washed out and reprecipitated, its coagulation is not sensitized by addition of urethane, but this happens when the intermicellar liquid, originally filtered off, is added. This experiment shows evidently that the electrolytes contained in the intermicellar liquid are required to render possible the sensitization by urethane.

Besides the above instances of sensitization, we frequently deal with cases where a colloidal solution with particles of a certain sign of charge coagulates another colloidal solution with particles of an opposite charge. If in such cases the particles of one of the sols are in decided excess, no flocculation occurs. The resulting sol has the colour and properties of the colloid whose particles are in excess, although it appears more turbid. Thus mastic particles appear white and the indophenone particles red. When mastic is added in excess to indophenone, only white particles can be seen in the ultra-microscope (Michaelis and Pincussohn, *Biochem. Zeits.*, 1906-07, 2, 251).

It would appear from the following that the slime water has sensitizing action on clay suspensions.

#### THE SENSITIZING ACTION OF THE SLIME WATER OBTAINED FROM *BORO* FISH.

Dr. Hora has brought to our notice that the slime water obtained from the body of a type of *Boro* Fish causes muddy water to coagulate.<sup>1</sup> The mud has a natural tendency to settle and is thus a coarse suspension, but it settled more quickly on the addition of the slime water.

Two *Boro* Fishes (Nos. 1 and 2) were used for this work. The effect of the slime water on Uttarbhag clay supplied by Dr. Hora, as also on a typical positively charged (ferric hydroxide) sol and a typical negatively charged (gold) sol, has been investigated.

#### Section I—*Boro* Fish, No. 1.

##### SLIME PREPARED WITH CONDUCTIVITY WATER.

##### *Experimental.*

The fish was washed well with distilled water and then kept immersed in conductivity water (200 c.c.) for 15 min. Afterwards the fish was taken out, the water of the beaker thrown off, fresh 200 c.c. conductivity water was taken and the fish immersed in that water. After contact with the conductivity water for one hour, the slime water thus prepared was taken and used for further experiments<sup>2</sup> (No. 1).

##### *Determination of pH values :—*

The pH was determined by the Folien Colorimeter (Method of Dr. Wulff).

<sup>1</sup> For an account of the biology of the *Boro* Fish see the preceding article [Hora, *Journ. Asiat Soc. Bengal* (N.S.), XXIX, pp 271-274, pl. 19, 1934.]

<sup>2</sup> After about 1½ hour immersion in conductivity water, the fish died.

*Measurement of the coagulative power of the slime water :—*

The coagulative power was determined by noticing the coalescence and extent of settling and in the case of gold sol by the change of colour.

*Determination of specific conductivity :—*

The specific conductivity of solutions was measured by the Kohlrausch bridge method.

## RESULTS.

TABLE I

| Sp. cond. of original water.     | pH of original water by Fohien Colorimeter. | Sp cond of slime water (No 1).     | pH of slime water by Fohien Colorimeter. |
|----------------------------------|---------------------------------------------|------------------------------------|------------------------------------------|
| <sup>-6</sup><br>$1.6 \times 10$ | 6.4                                         | <sup>-4</sup><br>$1.019 \times 10$ | 5.0                                      |

TABLE II.

| Expt. No | Sol                                                | c.c of sol. | c.c of slime water (No 1) | Observation                         |
|----------|----------------------------------------------------|-------------|---------------------------|-------------------------------------|
| (1)      | Ferric Hydioxide                                   | 10          | 5                         | Partial coagulation after some time |
| (2)      | "                                                  | 10          | 2                         | Very little coagulation             |
| (3)      | "                                                  | 5           | 10                        | Considerable coagulation.           |
| (4)      | Upper liquid of Expt. (3) which was still coloured | 5           | 5                         | Complete coagulation                |
| (5)      | Gold                                               | 10          | 5                         | No effect.                          |
| (6)      | "                                                  | 10          | 10                        | "                                   |

Section II—*Boro* Fish, No. 2.

## SLIME PREPARED WITH TAP WATER.

*Experimental.*

The fish was allowed to remain in contact with tap water for 48 hrs.<sup>1</sup> The slime water thus obtained was used for experiments (No. 2).

<sup>1</sup> In tap water *Boro* Fish (No. 2) can breathe freely and is still surviving even after immersion for nearly two months

A solution of 5% by weight of dry Uttarbhag Mud was prepared.

*Measurement of coagulative power of the slime water :—*

## RESULTS.

TABLE III.

| Sp. cond. of tap water. | pH of original tap water by Folien Colorimeter. | Sp. cond. of slime water (No. 2). | pH of slime water (No. 2) by Folien Colorimeter. |
|-------------------------|-------------------------------------------------|-----------------------------------|--------------------------------------------------|
| $6.006 \times 10^{-4}$  | 7.8                                             | $6.16 \times 10^{-3}$             | 4.9                                              |

TABLE IV.

Slime water (No. 2) and clay suspension.

| Expt. No. | c.c. of suspension. | c.c. of slime water (No. 2). | Observation.                                                                                |
|-----------|---------------------|------------------------------|---------------------------------------------------------------------------------------------|
| 1         | 10                  | 0                            | Partial settling in 30 min., a fine suspension was left.                                    |
| 2         | 9.8                 | .2                           | Partial settling in 15 min., a fine suspension was left.                                    |
| 3         | 9.5                 | .5                           | Partial settling in 30 min., a very fine suspension was left.                               |
| 4         | 9                   | 1                            | Partial settling in 10 min., a very fine suspension was left.                               |
| 5         | 8.5                 | 1.5                          | Partial settling in 12 min., a very fine suspension was left.                               |
| 6         | 8                   | 2                            | Partial settling in 6 min., a fine suspension was left.                                     |
| 7         | 7.5                 | 2.5                          | Partial settling in 3 min., a turbidity remained in the supernatant liquid even for 15 min  |
| 8         | 7.0                 | 3                            | Partial settling in 3 min., turbidity remained in the supernatant liquid even after 10 min. |

TABLE IV(a).

Slime water (No. 2) and clay suspension 5%.

| Expt. No. | c.c. of slime water (No. 2). | c.c. of suspension. | Observation.                                                                                                                                    |
|-----------|------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1         | 9.8                          | .2                  | Coalescence to big particles within $\frac{1}{2}$ min., partial settling within 3 min. and complete settling within half an hour.               |
| 2         | 9.7                          | .3                  | "                                                                                                                                               |
| 3         | 9.6                          | .4                  | Coalescence to big particles within $\frac{1}{2}$ min., partial settling within 1 min. A homogeneous suspension was left as supernatant liquid. |
| 4         | 9.5                          | .5                  | Partial coagulation and settling within $1\frac{1}{2}$ min., a turbid suspension left behind.                                                   |
| 5         | 9                            | 1                   | "                                                                                                                                               |
| 6         | 8.5                          | 1.5                 | "                                                                                                                                               |

TABLE V.

Slime water (No. 2) and Ferric Hydroxide Sol.

| Expt. No. | c.c. of sol. | c.c. of slime (No. 2) or tap water. | Observation.                                                                                          |
|-----------|--------------|-------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1         | 9.8          | .2 (slime)                          | No effect within 12 min.                                                                              |
| 2         | 9.5          | .5 "                                | Instantaneous turbidity; no settling with 12 min.                                                     |
| 3         | 9            | 1 "                                 | Instantaneous turbidity; after 10 min. heavy particles settled down and the upper was coloured brown. |
| 4         | 8.5          | 1.5 "                               | Instantaneous coagulation.                                                                            |
| 5         | 9.8          | .2 (tap)                            | No change within 6 min.                                                                               |
| 6         | 9.75         | .25 "                               | "                                                                                                     |
| 7         | 9.5          | .5 "                                | "                                                                                                     |
| 8         | 9            | 1 "                                 | Slight turbidity, no precipitation after 6 min.                                                       |
| 9         | 8.75         | 1.25 "                              | Slight turbidity, no precipitation within 6 min.                                                      |
| 10        | 8.5          | 1.5 "                               | Immediate turbidity; settling after 3 min.; and upper liquid was coloured red.                        |
| 11        | 8            | 2 "                                 | Immediate turbidity; settling after 3 min.; the upper liquid remained coloured red.                   |
| 12        | 7.8          | 2.2 "                               | Immediate turbidity; complete settling after 3 min.                                                   |

TABLE V(a).

Slime water (No. 2) and Ferric Hydroxide Sol.

| Expt No | c c of slime water (No. 2) | c c of sol | Observation.                                                                                                                                           |
|---------|----------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | 9.8                        | .2         | Immediate coagulation, fine coagulated particles remained suspended in the medium, complete settling within 25 min                                     |
| 2       | 9.5                        | 5          | Immediate turbidity, gradual settling of coagulated particles, after half an hour a thin layer of liquid in the upper part of the mixture became clear |
| 3       | 9                          | 1          | Immediate turbidity after about 40 min a thin layer of liquid in the upper part of the mixture became clear                                            |
| 4       | 8.8                        | 1.2        | Immediate partial coagulation after 5 min, the supernatant liquid was almost clear                                                                     |
| 5       | 8.5                        | 1.5        |                                                                                                                                                        |
| 6       | 8                          | 2          | ,                                                                                                                                                      |
| 7       | 7.5                        | 2.5        |                                                                                                                                                        |

TABLE VI

Slime water (No. 2) and Gold Sol

| Expt No | c c of sol | c c of slime (No. 2) or tap water | Observation                                                                           |
|---------|------------|-----------------------------------|---------------------------------------------------------------------------------------|
| 1       | 9.8        | 2 (slime)                         | No change within 5 min                                                                |
| 2       | 9.5        | 5 "                               | Slight colour change within 15 sec, complete change within 1 min 30 sec               |
| 3       | 9          | 1                                 | Immediate appearance of blue colour                                                   |
| 4       | 9.9        | 1 (tap)                           | No effect after 6 min                                                                 |
| 5       | 9.8        | 2 "                               | "                                                                                     |
| 6       | 9.7        | 3 "                               | "                                                                                     |
| 7       | 9.6        | 4 "                               | "                                                                                     |
| 8       | 9.5        | 5 "                               | "                                                                                     |
| 9       | 9.0        | 1 "                               | "                                                                                     |
| 10      | 8.75       | 1.25 "                            | Slight bluish colour after 3 min                                                      |
| 11      | 8.5        | 1.5 "                             | "                                                                                     |
| 12      | 8.4        | 1.6 "                             | "                                                                                     |
| 13      | 8.25       | 1.75 "                            | A fairly deep blue colour developed within 3 min                                      |
| 14      | 8          | 2 "                               | A fairly deep blue colour developed within 2 min                                      |
| 15      | 7.5        | 2.5 "                             | Immediate change to bluish colour<br>A fairly deep blue colour developed within 1 min |
| 16      | 7          | 3 "                               | Immediate appearance of deep blue colour                                              |

TABLE VII.

Slime water (No. 2) and electrolyte (a few solid crystals).

| Expt. No. | c.c. of slime. | Electrolyte.                   | Observation. |
|-----------|----------------|--------------------------------|--------------|
| 1         | 15             | KCl                            | No effect.   |
| 2         | 15             | K <sub>2</sub> SO <sub>4</sub> | „            |

TABLE VIII.

The reaction between slime water (No. 2) and Uttarbhadg clay.

A suspension of 5% air-dried Uttarbhadg clay was used.

pH values: tap water=7.8; cond. water=6.2; slime water (No. 2)=4.9.

| c.c. of clay suspension. | c.c. of cond. water. | c.c. of tap water. | c.c. of slime water. | pH. |
|--------------------------|----------------------|--------------------|----------------------|-----|
| 5                        | 0                    | 5                  | —                    | 7.5 |
| 5                        | 5                    | —                  | —                    | 6.3 |
| 5                        | —                    | —                  | 5                    | 5.0 |

*Measurement of the Electric charge of clay (Uttarbhadg mud) in contact with conductivity water tap water, and slime water:—*

The clay was put in an endosmotic tube up to two fixed marks in the two limbs of the tube (Mukherjee and Co-workers, *J.C.S.*, 1926, p. 3023). The electrodes were connected with the main. Electrolysis of the solution took place with fair rapidity. The temperature of measurement was 32.8°C. The movement of the bubble was taken for 3 min. The time of contact of the liquid mixture (250 c.c.) and clay was 24 hrs. in each case

TABLE IX.

Electro-osmotic measurement of clay with slime water.

Temp.=31.5 to 32 C

| Conc. of slime water (No. 2) | Electro-osmotic movement of the bubble in cms. per 3 min. |
|------------------------------|-----------------------------------------------------------|
| 0 (cond. water was used)     | -10.2 *                                                   |
| 0 (tap water was used)       | -12.7 *                                                   |
| 10% (cond. water was used)   | -10.4 *                                                   |
| 20% .. ..                    | †                                                         |
| 100% .. ..                   | †                                                         |

\* Slight electrolysis took place.

† Vigorous electrolysis occurred and reading could not be taken.



*Signs of charge of the micelles in slime water (No. 2):—*

*Platinum electrodes.*

When the solution was electrolyzed by the application of 220 volts in a U-tube, vigorous electrolysis took place. There was decomposition of the solution and in 2 minutes a considerable amount of white flocculi separated at the negative electrode and remained floating on the surface of the liquid at the negative electrode. Some white flocculi also separated at the bottom of the negative compartment.

DISCUSSIONS.

Results in Tables I and III show that the active material of slime water is acidic in nature. In the case of conductivity water, the pH is decreased from 6.4 to 5.0 (Table I), while in the case of tap water (Table III), the pH is decreased from 7.8 to 4.9. The specific conductivity of the water increases considerably in both the cases.

Tables IV and IV(a) will show how an increase in the quantity of the slime water sensitizes the clay suspension more and more. But a considerable quantity of the slime water (about 9.7 in 10 c.c. of the mixture) is found to be necessary for complete coagulation of the clay suspension. The data recorded in Table IV were obtained by adding slime to the clay suspension whilst in the case of the data in Table IV(a) the reverse procedure was adopted.

In a similar way, the observations recorded in Table V were obtained by adding slime or tap water to the sol and in case of Table V(a) the sol was added to the slime water. On comparing the results obtained with the slime water with those with tap water, it was found that while 1 c.c. of slime water was required for complete coagulation in 10 c.c. of the mixture—2.2 c.c. of tap water was required in 10 c.c. of the mixture. The results given in Tables V and V(a) show how a gradual decrease in the quantity of slime water, helps to sensitize the ferric hydroxide sol more and more. The data given in Table VI record the observations on the coagulation of gold sol by slime water. The data show that while only 1 c.c. of slime water is required in 10 c.c. of the mixture for immediate change of colour of gold sol, 2.5 c.c. of tap water in 10 c.c. of the mixture is required for the same purpose. The results therefore establish a definite sensitizing effect of slime water on gold sol.

Non-precipitation of any substance from the slime water (Table VII) on the addition of solid KCl and  $K_2SO_4$  does not prove that the slime is not colloidal in nature, since many dilute hydrophilic colloidal solutions are not easily precipitated on the addition of salts. Other direct method of testing as to

how far the slime water is colloidal in nature, are being attempted, and will be dealt with in a later paper.

From Table VIII we find that slime water turns these clay suspensions acidic, and tap water turns them alkaline. We find also that on passing an electric current through slime water between platinum electrodes, some white flocculi separate at the negative electrode. It appears, therefore, that the particles in the slime water are positively charged and this fact might explain why the slime water is effective in sensitizing negatively charged clay suspensions. It appears, however, from Table IX that the slime water has very little effect on the electric charge (measured by electro-osmotic experiments) of the particles of the clay suspension. A simple explanation of the sensitization process is therefore not easy in this case.

The fact that slime water (No. 1) prepared in conductivity water coagulated ferric hydroxide sol (positively charged) but was without any effect on gold sol (negatively charged) (*vide* Table II) is interesting, since we also notice that the same slime water could coagulate negatively charged clay suspensions. Measurement of the gradual variation of cataphoretic speeds of fine clay suspensions, as also of ferric hydroxide sol and gold sol on the addition of slime water would be interesting.

The fact that the *Boro Fish* does not survive long when immersed in conductivity water as opposed to the case of tap water and the fact that slime water prepared by conductivity water (No. 1) had no precipitating action on gold sol although slime water prepared by tap water (No. 2) coagulates gold sol readily, suggest that the metabolic process in conductivity water may be different from that in tap water, and it might also be different from that in the clay suspension. It can also be incidentally suggested that the sensitizing effect of the slime water on a colloidal solution or a clay suspension might be quite different from that observed by immersing the fish itself in the same colloidal solution or clay suspension. The mechanism by which sensitization takes place in the above two cases might be quite different.

Further experiments are therefore desirable.

Our thanks are due to Prof. J. N. Mukherjee, D.Sc., for his kind interest in the work.

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## Late Tertiary Uplift in Singhbhum.

By J. A. DUNN.

During the earlier portion of the geological survey of Dhalbhum, the eastern subdivision of Singhbhum, several curious small laterite-capped plateaux had been observed standing above the plain of Singhbhum granite. The general level of the Singhbhum plain here is 600-700 feet whilst the plateaux levels are at about 850 feet. The plains around the plateaux are drained principally by the Garra Nadi, which joins the Subarnarekha river to the east at the 339 foot contour. A wide tract of hills, ascending to 1,750 feet, intervenes between the plains and the Subarnarekha.

The plateaux obviously represent the general level of an old peneplain. Where they were first encountered it was thought that stream-capture was responsible for the sudden rejuvenation of stream erosion which has given rise to the lowering of the plains' surface. The short east-flowing streams of steep gradient, which have their headwaters in the ranges, are extending their catchment by head erosion. Some of them have now cut their way right back through the ranges, and it will not be long before they capture some of the tributaries of the Garra Nadi. With the consequent steepening of the gradients of these captured streams erosion will be increased and the general level of the country in the immediate neighbourhood rapidly lowered. It was thought that the present path of the Garra Nadi through a gorge in the ranges had been determined by such a method of capture, and that originally this stream had meandered over the plains to the north emptying into the Kharkai river. The capture of the Garra Nadi and its diversion into the Subarnarekha resulted in an immediate rapid lowering of its drainage area.

Although stream capture is going on, an extension of the survey has shown that it is only a part cause in the intermittent rejuvenation of stream activity here.

Similar laterite plateaux have since been found on the eastern side of the ranges close to the Subarnarekha, in such positions that stream capture cannot have contributed to their history. Often the laterite of these plateaux covers a thick layer of gravel, and sometimes gravel beds occur without overlying laterite. East of the Subarnarekha river these gravels are seen to be at the base of

a thick series of beds which have been described on the older maps as 'older alluvium and laterite', and which extend east into Midnapore district and towards the coast. These beds consist of sands, coarse grits, and pebbly beds with rare mottled sandy clays, and are sometimes semi-consolidated. Frequently they are very ferruginous and have been cemented to form concretionary current-bedded ferruginous sandstone. So far as can be determined they are horizontal. No fossils have been found. At the surface they give rise occasionally, especially along drainage lines, to a gravelly laterite.

These gravel beds are well marked off from the more recent alluvium formed along the lower reaches of the Subarnarekha river. Two, and sometimes three, terraces of the newer alluvium can be made out along the river bank, and the upper terrace forms a flat plain which shows a rather sharp junction with the slightly undulating country of the 'older alluvium'. Recent wash from the latter may at times rather obscure the boundary.

The general level of 'the older alluvium' is 250-350 feet, the highest point is at 400 feet, but there is a gradual fall to the east towards Midnapore.

In the southern part of Dhalbhum the basal gravels are at an altitude of 250 feet, but they rise gradually to 350 feet towards the N.-W. Westward outliers of these gravels are found at successively higher horizons, and, as already stated, are found on the small plateaux at an altitude of 750 feet.

The river level at the most southerly point in the area is at 188 feet—some 80 miles from the sea. Subarnarekha at base level. The river has more or less reached base level here and is running over its own alluvium. At this point it has eroded only some 60 feet below the basal gravels of the older alluvium.

The only explanation of the rejuvenation of denudation subsequent to deposition of these gravel beds is uplift. Differential uplift. The line of movement, as indicated by the levels, must have approximately followed the valley of the Subarnarekha river, and along the edge of the foothills to the west. It is not assumed that this line formed a definite fault: there was probably a narrow belt within which warping took place.

The gradual increase in altitude of the tops of the plateaux westward from the line of warping, represents erosion after warping. probably the natural slope of the old peneplain. As might be expected, denudation of this old peneplain has been deeper close to the line of suggested upwarping, where there was a sudden steepening of the stream gradients, and the new plain level is 300-400 feet below the residual plateaux—almost at the old level again, and at nearly the same altitude as the plains east of the Subarnarekha river.

Further west, however, away from the steeper gradients and closer to the headwaters, erosion has not progressed so deeply and the new plain is at a level of only 200 feet below the old peneplain.

The extent of differential uplift is given by the difference in levels between the residual plateaux and the basal gravels of the 'older alluvium' close to the line of warping. The uplift is between 300 and 350 feet.

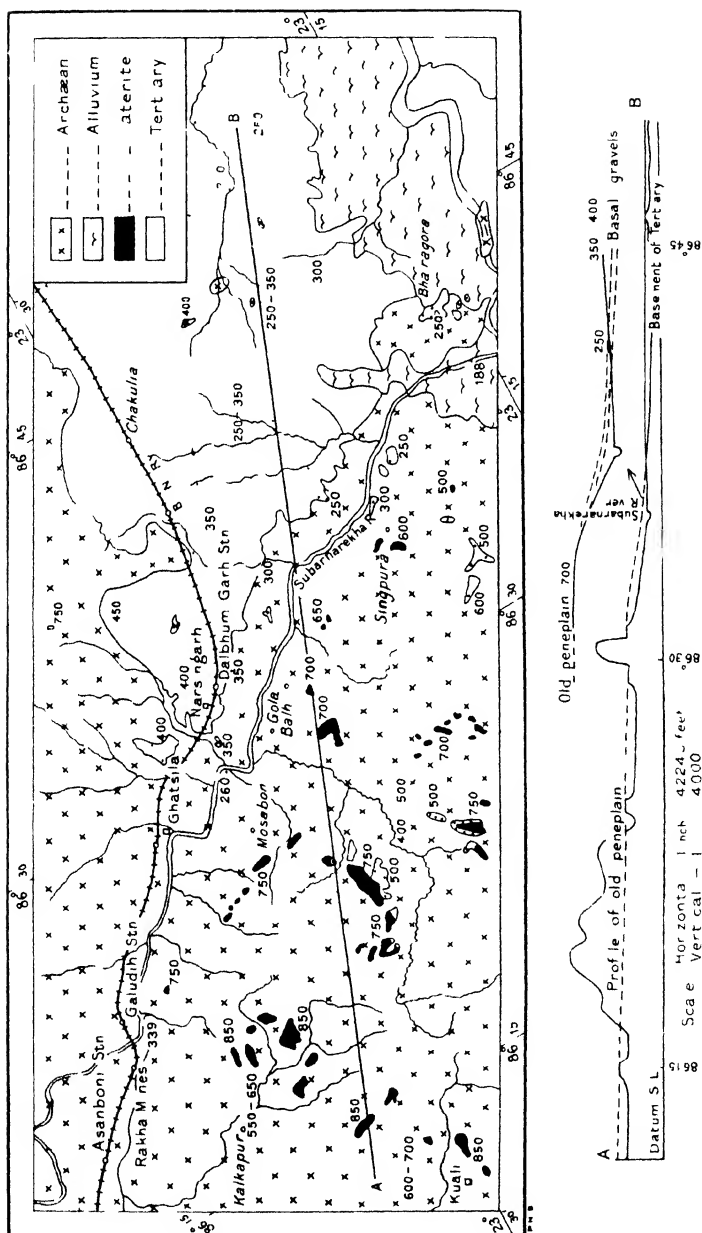
The old peneplain had a gradual slope to the east. On this gently sloping surface were deposited the series of gravels and grits which cover the whole country east of the Subarnarekha river. The basal bed, consisting mainly of coarse pebbles, was deposited also over the country some distance further west (here the size of some of the boulders rather indicates fluvial conditions), and remnants of it are found on the old plateaux just below the laterite. Considering the extent, since uplift, of denudation by streams working almost at base-level, with the formation of widespread plains at an altitude some 200 feet lower than the plateaux, the uplift and therefore the gravels are by no means recent, and may date back to late Tertiary. They are possibly even pre-Pliocene.

These beds are very similar indeed to the Durgapur beds of the Raniganj coalfield, in which certain silicified fossil wood fragments, recently determined as Tertiary (probably Miocene) in age, have been found. At Baripada in Mayurbhanj State, some 25 miles south of this Dhalbhum area, is an occurrence of Tertiary marine beds containing *Ostrea*; later mapping will determine whether the Tertiary beds of these areas are continuous. The Dhalbhum beds are certainly fluvial in part; there is some suggestion of deposition under estuarine conditions for the beds west of the Subarnarekha river. An estuarine origin would, of course, mean a general uplift of 300-400 feet since the highest of these beds was deposited. Even if these grits and gravels east of the Subarnarekha river are regarded as entirely fluvial, their uplift since deposition is still obvious; our coastal rivers are extending their base-levels, not shortening them, so that erosion of coastal flood plains, as distinct from those nearer the headwaters, can only take place by uplift. So far, the Subarnarekha river along its eastern bank has cut more than 200 feet below the top of these supposed Tertiary beds.

The occurrence of the plateaux, with associated basal gravels of the supposed Tertiary deposits, suggests that differential uplift west of the Subarnarekha river was initiated at an early stage in the deposition of these beds, and erosion of the old peneplain to the west commenced immediately. A general uplift along the coast

then slowly continued to the present day; the early beds, occurring at a higher level than those more recently deposited, have accordingly been eroded deeply in places. The tendency of this uplift to steepen the gradient of the Subarnarekha river has been partly compensated by the seaward lengthening of the river as a result of deposition of sediment at its mouth—the difference is represented by the 200 feet of erosion of the supposed Tertiaries. If these latter are accepted as estuarine, the total uplift west of the Subarnarekha is about 700 feet, whilst east of the river it is 400 feet.

The author has used the term 'supposed Tertiaries' for these beds, because although he thinks it highly probable on the grounds given above that they are of Tertiary age, yet this supposition lacks the support of fossil evidence.



Geological Map of Dhalbhum





## Temperature as a Factor in Sex Determination in Man.

By M. K. SUBRAMANIAM.

### INTRODUCTION.

It has long been recognized that there is a seasonal variation in the proportion of sexes in the progeny produced by various animals. This has been demonstrated in Man by Heape (5), in Mice by Parkes (12), in *Peromyscus* by Sumner (9), in Albino Rat by King and Stotsenberg (10), and in Dogs by Heape (2). Various explanations have been offered to this phenomenon at various times. The Hindus, 2,000 years ago (15), attributed it to the variation in the equilibrium between the three humours of the body and early in the Twentieth Century scientists attributed it to metabolism and a certain inherent rhythm. Climate is divided according to temperature, rain and other meteorological conditions, and as temperature is an important factor, an attempt has been made in this paper to correlate seasonal variation in the sex ratio with temperature conditions. If, as Orton (8) has shown, particular temperature conditions are required for reproduction, it is also possible that the sex of a child may be similarly affected by temperature.

### METHODS AND MATERIAL.

Schultz (7) mentions that as detailed analysis of birth statistics of Eastern Nations has not up till now been obtained, he could not compare the birth ratio of other Nations with that of the East. This is an attempt to present the statistics of birth in the City of Madras. Five years' birth statistics consisting of 1,67,749 births giving an average ratio of 105.38 males for every 100 females, are herein presented. The births taking place in the City of Madras are reported in the *Fort St. George Gazette*. Similarly the maximum and minimum temperature recorded in the City of Madras are also reported by the Meteorological Department in the *Fort St. George Gazette*. In the case of births only weekly statistics are available but temperature records are available for any day of the year.

It may be assumed that in the majority of cases coitus takes place during the night only and so the average monthly minimum temperatures are used as the basis for all the calculations in this paper.

The 'Difference' between the maximum and minimum temperatures has been taken as an important factor as this in a way explains many of the points which cannot be explained by temperature alone.

The birth ratio is calculated here as the number of males born to every 100 females.

The time of conception is used here as the basis to work upon and an attempt is made to correlate monthly average minimum temperature with the time of conception. Thus for example, for the conceptions taking place in the month of January 1929, the temperature of which is known, the birth is supposed to take place in the period September 27th, 1929, and November 6th of the same year, and for the conceptions taking place in the month of December 1929, the birth is supposed to take place in the period September 27th to October 6th of 1930. This calculation is based on the belief that the average period of conception is 273 days [John D. Comrie, *Black's Medical Adviser for Home* (16)], the calculations of birth ratio being made of births occurring between 268 days from the first of the month (the temperature of which is known) and 278 days from the last day of the month. This generally requires the addition of six weeks' birth records.

Thus in Tables I to VI the temperature records give the average minimum temperatures (monthly) for the years 1926-1930 while the birth records extend from September of the same year to the September of the following year. The probable error is calculated according to the formula  $\pm 67.45 (1 + R) \sqrt{\frac{\bar{R}}{N}}$ , where  $R$  is the number of males divided by the number of females and  $N$  the total number of individuals (9).

The Records are classified into Annual and Seasonal tables in addition to which is given a table showing average monthly and seasonal ratios for the period of five years, the data of which have been used.

#### PROBABLE ERRORS.

(1) The birth records may not give all the births that take place in the City but only those registered.

(2) Many of the births which take place in the City of Madras may be conceived outside the City.

(3) Many conceptions taking place in the City being unrecorded as the births take place outside the City.

(4) The minimum temperature records here used may not be accurate for the purpose of correlation as during some days the temperature during the nights may not be the minimum.

(5) There are other factors affecting Sex Determination, such as (1) Nutrition; (2) Order of Birth; (3) Age of Parents; (4) Marriage between Races; and (5) Prostitution, etc. It is to be understood that temperature is but one of the factors.

*Madras.*—Madras is the capital of the Madras Presidency and the chief Port on the East Coast of India. It is situated 13°4' N. and 80°17' E. The City with its suburbs extends nine

miles along the sea and four miles inland, intersected by the little river Cooum. The area is 19,728 acres. The population according to the 1921 census is 5,28,791 and according to the 1931 census 6,47,230.

|                      | 1921 census. | 1931 census. |
|----------------------|--------------|--------------|
| Europeans .. .       | 2,942        | 3,581        |
| Anglo-Indians ..     | 9,002        | 10,657       |
| Indian Christians .. | 32,216       | 39,884       |
| Hindus .. ..         | 4,29,155     | 5,20,176     |
| Muhammadans ..       | 53,586       | 70,031       |
| Others .. ..         | 1,890        | 2,901        |

At first sight the City presents a disappointing appearance and has no handsome streets. It is spread over a very wide area, and many parts of it are almost rural in character. Roughly it consists of the following divisions: (1) George Town, an ill built—except for the First Line Beach—densely populated block, a mile square, containing the Banks, Custom House, and the High Court. Immediately south of George Town is (2) an open space which contains the Fort St. George, Marina, Government House, and several Public Buildings along the sea coast. (3) West and south of this lung of the City are the crowded quarters of Triplicane, etc. which bend again to the sea at the old town of San Thome. (4) To the west of George Town are the quarters, Vepery and Pudupet, chiefly inhabited by Eurasians and the European suburbs of Egmore, Nungambakam, and Perambur. (5) South and west lie the European quarters of Teynampet and the aristocratic Adyar.

There are no special industries in Madras, except Steel Foundries, Cotton Mills, Dyeing Works, and Cigar and Beedi Factories. (*En. Britt.*)

#### TEMPERATURE AND SEASONS IN MADRAS.

*Temperature.*—From a review of the temperature of Madras it is found that the maximum temperature of Madras varies from 80°F. to 105°F. or higher during some years, and the minimum temperature is between 65°F. and 85°F. There is a regular rise in temperature from January to May or June during which months the temperature is at its maximum after which there is a regular fall in temperature till December. The rise from January to February is steady but that from February to March is sudden. After that till May or June there is a steady rise in temperature. The fall from May to December is gradual.

*Seasons.*—The seasons into which the months are divided are based on the monsoons. It may be said that there are roughly four seasons in Madras: (1) December, January, and February—a cool dry period, (2) March, April, and May—which is hot and dry, (3) June, July, and August—when the

South-West monsoon is in full force in the West Coast of the Presidency, making the climate of the City a hot humid one, and (4) September, October, and November—the retreating monsoon—which is the rainy season in Madras. But in Madras there is no regularity of the rainy season. In some years exceptionally heavy rains are experienced and in some years there is only scanty rainfall.

*Ser Ratio.*—The sex ratio here dealt with is the secondary sex ratio (Schultz 7) and even that does not include the ‘stillbirths’. The statistics published in the *Fort St. George Gazette* does not include the ‘stillbirths’ and hence there is lack of details regarding this.

A review of the Tables I to VI shows that every year there are two months of highest sex ratio, one occurring in May or June and another in September, October, or November. It is generally in the latter that a higher sex ratio occurs.

On the other hand March is generally the month in which the lowest sex ratio occurs.

This biennial rhythm has been noticed by other writers as well

Taking monthly records into account we find that Sumner has found two well-marked maxima in the sex ratio, one in the month of March (Ratio 113) and another in the month of September (107), taking the period of conception of *Peromyscus* as 22 days. No other records of monthly ratios are available but records of seasonal variation are numerous. Parkes (12) found that the maximum sex ratios are obtained in the breeding periods September-October-November quarter (55.9%) and another less pronounced one in June-July-August quarter (52.2%). Sumner found a similar variation and states that January to March quarter of the breeding period produced a ratio of 105.35 and the July to September quarter a ratio of 102.68. King and Stotsenberg’s (10) results contradict some of the findings of Sumner but roughly coincide with that of Parkes. Calculated according to breeding periods King and Stotsenberg’s results show a maxima in May-June-July quarter and another in September-October-November quarter. Heape states that in man there is generally one period of highest sex ratio (also another in September 1906) and two periods of lowest sex ratio. The highest sex ratio occurs (when calculated according to the time of conception) in October (and also in June 1906) and the lowest sex ratios in November-December and March. The lowest sex ratio produced in March is less pronounced than the one in November-December. Taking monthly records into account the data presented in this paper differ from those of Heape in that generally there are two maxima and one minimum. The first maximum occurs in May or June, a result mentioned by Heape only for the year 1906, and the second in October as mentioned by the same author. This in a way also agrees with

that of Sumner, but differs in that the second one is more marked than the first. Comparing seasonal variation with other records, it is found that there is only one maximum and one minimum. Generally there is a gradual rise from December-January-February quarter to September-October-November quarter.

*Temperature and Sex Ratio.*—Heape in his paper on the Canaries (2) and on the people of Cuba (5) mentions that temperature may be one of the causes affecting the sex ratio and many other workers have noticed the difference between the breeding of animals in natural and artificial conditions.

In man Heape finds that sudden changes in climate bring about more females as according to him the reproductive system is specially stimulated by climatic changes. He mentions that in February 1906 the highest sex ratio recorded coincided with a high temperature in June 1905, the date of conception. In another place he says that the marked number of males produced in January and February is due to the adverse conditions affecting the individual during the period of conception; the trying summer months of the previous year.

Heape is silent as to how temperature affects the sex ratio and does not attempt to correlate sex ratio with temperature.

The records herein presented show that the maximum ratios occur (I) (a) when the temperature is near the maximum for the year, and (b) the 'Difference' near its maximum for the year; and (II) (a) when the temperature is near the average for the year, and (b) the 'Difference' also near the average or below the average. Why such a state of affairs should occur will be explained below.

#### HEAT AND COLD AS AFFECTING THE HUMAN SYSTEM.

One is led to believe that the heat affecting the human system cannot be inferred from temperature conditions alone. It is found that the temperature varies from hour to hour and that the maximum and minimum temperatures recorded do not generally indicate the heat felt by the body for the day taken as a whole. In the Hindu System of Medicine the whole day is divided into three periods during each period of which one or other of the three humours of the body is dominant, the period of dominance being different in different seasons. In a similar way the night is also divided into three periods.

From a systematic analysis of temperature it may be concluded that on a certain day though the temperature is very high, if the minimum temperature is low, then we feel that the day considered as a whole is not very hot.

We feel a day as very hot even though the temperature is not very high because the maximum may be very near the minimum; and similarly we say that a day is cold even when the temperature is not the minimum for the year but when it is

below the average for the year and when the 'Difference' is not very much. On some days the temperature recorded here was low but not cold because the 'Difference' was much and on many days when the temperature was not very low the day has been felt cold because the difference was not great between the maximum and minimum temperatures.

Another thing of importance to be noted here is that the human system is not a rigid one which requires particular temperature conditions to make it feel 'Heat' and 'Cold'. As the temperature rises the body slowly adapts itself to higher temperatures. And as the temperature falls then also it adapts itself. Sudden changes towards a rise or fall in temperature always affect the body. Thus Heat and Cold (meaning the heat and cold as felt by the body and not judged from temperature) are only relative terms and, if one may be allowed to say so, Heat and Cold are felt in the hot as well as the cold seasons of the year, by the human body.

In this respect people living in the cold countries are not different from people living in the tropics. The only difference between them is that heat is felt more by a man living in a cold country and cold by a man living in a hot country.

A sudden lowering of the temperature during the hot season may make the human body feel more cold than a low temperature during the cold season. It is for this reason that difference in sex ratio cannot be accurately correlated with temperature conditions. This also explains why even though the same temperature prevails during the year in different months, the ratio differs slightly because in one case the temperature is on the ascent while in the other it is on the descent. Moreover there may be a sudden lowering of temperature compared with the previous month though the temperature may coincide with that of another month when a high sex ratio has been produced. The results are different in the two months which will make interpretation difficult.

#### SOME CONCLUSIONS DRAWN FROM THE RECORDS.

On the ground the records presented here do not give the primary sex ratio but only the secondary (that of stillbirths being not recorded) it cannot be denied that temperature is an important factor, on which the arguments in this paper have been mainly based. Prenatal mortality has been found to fall equally on both the sexes and according to Schultz (7) the primary sex ratio is higher than the secondary and he calculated that for every living born there were 127 conceptions, 100 with a sex ratio of 105.5 and 'a' stillbirths and abortions with a sex ratio of 'b' in all with a primary sex ratio with 'X'. This primary sex ratio he found to be 108.47 and he thinks that it

would not exceed 110. If primary sex ratio was lower than the secondary then all the arguments put forward hereafter may be doubtful. Many workers believe that the primary sex ratio is higher than the secondary. Therefore the arguments put forth must hold good.

1. There are two maxima every year : (i) in May or June, and another (ii) in September, October, or November.

2. Sudden changes in temperature, if they are sufficiently large, affect the sex ratio by lowering it.

Ex. March in the Five Year Statistics.

3. The maxima occur when the temperature is near the maximum and the ' Difference ' near the maximum.

|          |    |    |               |
|----------|----|----|---------------|
| Ex. 1927 | .. | .. | May and June. |
| 1928     | .. | .. | May and June. |
| 1929     | .. | .. | May and June. |
| 1930     | .. | .. | May.          |
| 5 years  | .. | .. | May.          |

When the temperature at the time of conception is near the average for the whole year and the ' Difference ' near the average or below the average.

|          |    |    |                         |
|----------|----|----|-------------------------|
| Ex. 1926 | .  | .  | October.                |
| 1927     | .  | .  | September and November. |
| 1928     | .. | .  | October.                |
| 1929     | .. | .  | October.                |
| 1930     | .  | .  | October.                |
| 5 years  | .. | .. | October.                |

4. When the temperature is rising there should be a corresponding rise in the ' Difference ' and when the temperature is falling there should be a corresponding fall. Anything contrary to this seems to lower the sex ratio. When the temperature is rising there should be a corresponding rise in the ' Difference ' otherwise there is a fall in the sex ratio. If the ' Difference ' falls instead of rising then also there is a fall. If on the contrary the difference rises out of proportion to the rise in temperature again a fall in the sex ratio is noticed.

According to the arguments put forward regarding the effect of heat and cold as affecting the human system it is perfectly conceivable how the difference affects the sex ratio.

|          |    |    |                         |
|----------|----|----|-------------------------|
| Ex. 1926 | .. | .. | March and April.        |
| 1927     | .. | .. | March.                  |
| 1928     | .. | .. | February and March.     |
| 1929     | .. | .. | March.                  |
| 1930     | .. | .. | February and September. |
| 5 years  | .. | .. | March.                  |

5. At the higher temperatures a sudden lowering of the temperature together with a rise in ' Difference ' lowers the sex ratio.

|          |    |    |              |
|----------|----|----|--------------|
| Ex. 1928 | .. | .. | May to June. |
| 1929     | .. | .. | May to June. |
| 5 years  | .. | .. | May to June. |



6. When the temperature is below the average temperature for the year any lowering either of the temperature or the 'Difference' lowers the ratio.

|          |    |    |                       |
|----------|----|----|-----------------------|
| Ex. 1926 | .  | .. | November to December. |
| 1927     | .. | .. | November to December. |
| 1928     | .. | .. | November to December  |
| 1930     | .  | .. | November to December  |
| 5 years  | .. | .. | November to December. |

From a brief survey of the above facts it is clear that even though there is a very high temperature in May, if there is a corresponding 'Difference' in temperature sufficient enough to compensate for the heat, it is conducive to the production of a high sex ratio. The conditions in the night in the month of May may be said to resemble those in the night of a day in October in the effect produced on the human system. (Cf. Heape.

#### SEX RATIO AND FERTILITY.

Heape states that the greatest excess of females is produced at times of the greatest fertility; so also King and Stotsenberg believe that there is a relation between sex activity and sex ratio. Heape states that 'Reference to my Records of temperature, barometric pressure, and humidity show that these bursts of reproductive activity always take place at times when there is a marked change in climate: one in Autumn . . . . the other in the early months of the year. It is obvious that it is not a definite temperature but a change of temperature which induces the boisterous generative activity'. As Sumner aptly remarks 'Heape does not give the number of births, nor the sex ratio for every month of the year but only deals with selected months of the year, namely, those showing the highest and lowest birth rates and we are therefore obliged to take Heape's conclusions upon his own authority'.

An analysis of the tables herein given shows that there is no correlation between birth rate and sex ratio:

1926 :—

- (1) The lowest birth rate occurs in May. Ratio 102·7.
- (2) The maximum ratio is in the month of July when the rate of birth per 1,000 of population is 40·5.
- (3) The maximum number of females are produced in the month of April (judged from the ratio) but the maximum birth rate occurs when the ratio is 107·5.

1928 :—

Maximum birth rate in December. Ratio 104·9.

Maximum birth ratio in July and October 110 and 110·2. Birth rates during these months are 38·85 and 43·1.

Minimum sex ratio occurs in February and March (98·8 and 98·6). Birth rates during these periods are 48·13 and 44·15.

1929:—

Maximum sex ratio 114.7 occurs when the minimum rate occurs but when the birth rate is at its maximum the birth ratio is also fairly high being 106.7. The lowest sex ratio occurs in March 99.8 when the birth rate is 51.7.

1930:—

Minimum birth rate occurs when the sex ratio is also minimum, i.e. in December (100.1 and 38.36). The maximum birth rate also occurs when the sex ratio is near the minimum (53.55 and 101.6).

An analysis of the average of the Five Year Records shows that the birth rate is lowest when the sex ratio is near the maximum—in May (38.37 and 109.8), but at the second maximum which is more pronounced than the first there seems to be no correlation between sex ratio and birth rate. When the lowest sex ratio occurs the birth rate is not the maximum (March) but it is near the average for the Five Year Period. It will be seen that this coincides with Parkes' view that after all there is no correlation between sex ratio and birth rate.

Heape's contention that sudden changes in temperature induce boisterous activity is not also proved by the records presented here, but the fact that sudden changes in temperature lowers the sex ratio is evident.

#### DISCUSSION.

One of the new lines of research followed by workers in the present century is the attempt by the physiologists to explain the different phenomena in the body in the light of chemical science. Work in this direction has brought out the interesting fact that no organ in the body is self-sufficient but that all organs work in co-operation. To quote Berman (13) 'Each gland is thus influenced and influencing, agent and reagent in the complex adjustments of the organism'.

The whole internal secretory system even though working as a whole really seems to consist of a number of divisions, each division being controlled by a certain number of the glands of internal secretion. One of the divisions in the above is the sex gland chain or directorate constituted by the thymus, the pineal, the pituitary, the adrenals, and the sex glands themselves. All the glands have been found essential for the various sexual phenomena, such as puberty, menstruation, impregnation of the ovum, labour, and lactation. Departure from the normal in the case of one or more of the glands has been known to accelerate or retard the various sexual phenomena. Glands of one division seem to be members of other divisions also and hence any effect on any part of the body affects the entire system and incidentally the sexual processes as well.

## EFFECT OF EXTRANEOUS INFLUENCES ON THE ENDOCRINE SYSTEM.

'The effect of environment in producing changes in organisms, the changes the Biologist sums up as adaptations, can be tracked in many instances to responsive reactions of the glands of internal secretion to demands made upon them by changed external conditions.' There have been noticed changes in the cells of the pituitary during hibernation. In a similar way various factors, such as disease, environment, shock, and injury have been known to make gland undersecrete or over-secrete.

Changes have been noticed in men made eunuchoid by accident. The changes that occur in such cases affect the constitutional make up, mentality, sexuality, and general metabolism.

Metabolism has been given a prominent place by Geoffrey Smith (6) and to some extent by Orton (11) as one of the causes affecting the production of a male or female in lower animals. In man metabolism is controlled by the gland directorate and hence explanations can be offered in terms of changes in hormone equilibrium which imply changes in metabolism.

Now after an examination of the above-mentioned facts we come to the conclusion that the internal secretions govern the sexual make up of a man or woman. Now let us see whether we cannot correlate these changes to the changes in the amount of secretions poured into the blood at various periods where again temperature plays an important part. It has been shown that the pituitary cells become reduced and contracted during hibernation and as ordinary sleep is only a miniature form of winter sleep it is surmised that a similar occurrence takes place in man when he goes to sleep. Such variations occur in the body every hour of the day, nay every minute of the day. From these deductions it may be suggested that the variations in temperature affect the system by either inhibiting or accelerating the secretions of the various glands of internal secretion. Ridgeway (3) in his Presidential Address before the Anthropological Section of the British Association has stated that environment can modify even the facial features of individuals and has given as an example the Modern American who even though descended from European Ancestors has the hatchet-shaped face of the Red Indian. This is one of the examples which show that temperature which is one of the factors on which the division of the climate of a place into seasons is based is able in a way to affect the constitutional make up of an individual.

The second thing that is intended to be postulated is that the difference in the quantity of internal secretions in some way affects the fertilization of the ovum. Heat and cold as defined seem to affect the female-determining hormone

controllers and average temperature conditions the male-determining hormone controllers.

As previously stated even though the temperature is very high in May the 'Difference' is correspondingly great and the temperature on such days is best fitted for the activity of the male-determining hormone controllers which help and determine the sex of an ovum.

The next problem is whether there are male and female ova and how the difference in equilibrium between the hormones of the body affects the fertilization of the ovum. Heape and Doncaster (4) believe that even though ovarian ova cannot be histologically differentiated into male and female yet there is division into male and female ova.

If, as stated, female ova occur, then there should be something to differentiate them from male ova and it can only be chemical differences. Admitting these chemical differences, it may be argued that similar to what occurs in lower animals there is some sort of chemotaxis which is caused by the hormone equilibrium of the body and which changes with the difference in hormone equilibrium. It will now be clear how when the temperature affects the hormone equilibrium the chemotaxis is also altered and if the chemotaxis is favourable to the production of a female then a female egg is fertilized and vice versa.

It will be seen that what has been postulated does not agree with Heape's arguments that unfavourable conditions produce males as the records do not prove such a statement.

In conclusion I would like to thank Professor R. Gopala Iyer, Director, University Zoological Laboratory, for his constructive criticism and valuable suggestions. My thanks are also due to Mr. K. Srinivasa Raghavan, B.E., for his invaluable assistance in the preparation of the tables.

TABLE I.  
BIRTH AND TEMPERATURE STATISTICS FOR THE YEAR 1926.

| Month.     | Period of Birth.                  | Males. | Females. | Total. | Ratio. | Probable Error. | Rate 0/100. | Min. T. | Diff. |
|------------|-----------------------------------|--------|----------|--------|--------|-----------------|-------------|---------|-------|
| January .. | September 27th to November 6th .. | 1,358  | 1,321    | 2,679  | 102.8  | ± 2.68          | 43.6        | 69.8    | 14.5  |
| February   | October 27th to December 6th ..   | 1,452  | 1,344    | 2,796  | 108.1  | „ 2.76          | 45.8        | 68.3    | 19.2  |
| March      | November 27th to January 6th ..   | 1,304  | 1,298    | 2,602  | 100.   | „ 2.66          | 42.6        | 75.3    | 15.3  |
| April      | December 27th to February 6th ..  | 1,217  | 1,250    | 2,467  | 97.2   | „ 2.63          | 40.4        | 79.5    | 14.3  |
| May        | January 27th to March 6th ..      | 1,071  | 1,043    | 2,114  | 102.7  | „ 2.99          | 34.65       | 81.8    | 17.2  |
| June       | February 27th to April 6th ..     | 1,155  | 1,070    | 2,225  | 108.0  | „ 3.01          | 36.4        | 83.7    | 19.1  |
| July       | March 27th to May 6th ..          | 1,095  | 969      | 2,064  | 113.2  | „ 3.34          | 40.5        | ..      | ..    |
| August     | April 27th to June 6th ..         | 1,119  | 1,095    | 2,214  | 102.05 | „ 2.93          | 43.5        | 77.9    | 17.2  |
| September  | May 27th to July 6th ..           | 1,194  | 1,140    | 2,334  | 104.8  | „ 3.06          | 44.9        | 76.9    | 16.8  |
| October    | June 27th to August 6th ..        | 1,553  | 1,399    | 2,952  | 111.05 | „ 2.76          | 47.55       | 73.7    | 17.1  |
| November   | July 27th to September 6th ..     | 1,803  | 1,676    | 3,479  | 107.5  | „ 2.45          | 57.0        | 69.9    | 15.1  |
| December   | August 27th to October 6th ..     | 1,719  | 1,662    | 3,381  | 103.5  | „ 2.39          | 55.45       | 67.5    | 17.4  |

SEASONAL VARIATION IN SEX RATIO.

| Season. | Min.<br>T.    | Diff.<br>1926. | Ratio. | Min.<br>T. | Diff.<br>1927. | Ratio. | Min.<br>T. | Diff.<br>1928. | Ratio. | Min.<br>T. | Diff.<br>1929. | Ratio. | Min.<br>T. | Diff.<br>1930. | Ratio. | Min.<br>T. | Diff. 5<br>years. | Ratio |
|---------|---------------|----------------|--------|------------|----------------|--------|------------|----------------|--------|------------|----------------|--------|------------|----------------|--------|------------|-------------------|-------|
| Dec.    | 69.1<br>} } } | 16.9           | 105.4  | 68.6       | 17.8           | 104.1  | 70.1       | 15.1           | 100.0  | 69.9       | 14.4           | 106.9  | 69.7       | 15.8           | 105.9  | 69.6       | 15.7              | 104.7 |
| Jan.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| Feb.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| Mar.    | 78.9<br>} } } | 15.9           | 100.1  | 78.6       | 16.8           | 105.3  | 77.5       | 17.9           | 102.4  | 77.1       | 16.9           | 107.3  | 77.1       | 16.4           | 109.8  | 77.8       | 16.8              | 105.1 |
| Apr.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| May     |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| Jun.    | 80.7<br>} } } | 18.1           | 108.0  | 79.9       | 17.2           | 108.3  | 79.9       | 17.3           | 105.9  | 79.5       | 18.1           | 105.7  | 79.2       | 17.4           | 108.6  | 83.1       | 17.0              | 106.8 |
| Jul.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| Aug.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| Sept.   | 73.5<br>} } } | 16.3           | 107.1  | 75.4       | 14.1           | 108.8  | 75.9       | 13.2           | 107.1  | 75.5       | 13.3           | 106.7  | 73.3       | 13.8           | 104.1  | 74.7       | 14.1              | 106.9 |
| Oct.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
| Nov.    |               |                |        |            |                |        |            |                |        |            |                |        |            |                |        |            |                   |       |
|         | 75.6          | 16.8           | 105.2  | 75.6       | 16.5           | 106.6  | 75.9       | 15.9           | 103.9  | 75.5       | 15.7           | 106.45 | 74.8       | 15.9           | 107.1  |            |                   |       |

TABLE II.

BIRTH AND TEMPERATURE STATISTICS FOR THE YEAR 1927.

| Month.       | Males. | Fe-<br>males. | Total. | Ratio. | Pro.<br>Error. | Rate<br>0/00. | Min.<br>T. | Diff. |
|--------------|--------|---------------|--------|--------|----------------|---------------|------------|-------|
| January ..   | 1,611  | 1,621         | 3,232  | 99.2   | ± 2.36         | 53.0          | 68.5       | 16.9  |
| February ..  | 1,656  | 1,537         | 3,193  | 108.1  | .. 2.58        | 52.2          | 69.7       | 19.0  |
| March ..     | 1,515  | 1,517         | 3,032  | 99.99  | .. 2.44        | 48.0          | 74.9       | 15.8  |
| April ..     | 1,384  | 1,301         | 2,685  | 106.4  | .. 2.78        | 43.6          | 79.0       | 15.9  |
| May ..       | 1,325  | 1,211         | 2,536  | 109.5  | .. 2.92        | 41.5          | 81.9       | 18.2  |
| June ..      | 1,348  | 1,218         | 2,566  | 110.5  | .. 2.94        | 42.2          | 81.1       | 18.1  |
| July ..      | 1,361  | 1,275         | 2,636  | 106.6  | .. 2.81        | 43.2          | 80.0       | 16.6  |
| August ..    | 1,315  | 1,219         | 2,534  | 107.9  | .. 2.89        | 41.5          | 78.6       | 16.9  |
| September .. | 1,282  | 1,169         | 2,451  | 109.8  | .. 2.98        | 40.2          | 77.6       | 15.0  |
| October ..   | 1,370  | 1,274         | 2,644  | 107.4  | .. 2.81        | 42.2          | 76.4       | 15.1  |
| November ..  | 1,586  | 1,451         | 3,037  | 109.2  | .. 2.67        | 48.6          | 72.2       | 12.2  |
| December ..  | 1,549  | 1,591         | 3,140  | 97.2   | .. 2.34        | 51.5          | 70.3       | 13.6  |

Average Minimum Temperature 75.9.

,, Difference .. 16.1.

The same arrangement is followed as in the previous table. Column 2 in Table I which gives the probable period of birth is omitted in this and the following tables.

TABLE III.

BIRTH AND TEMPERATURE STATISTICS FOR THE YEAR 1928.

| Month.       | Males. | Fe-<br>males. | Total. | Ratio. | Pro.<br>Error. | Rate<br>0/00. | Min.<br>T. | Diff. |
|--------------|--------|---------------|--------|--------|----------------|---------------|------------|-------|
| January ..   | 1,571  | 1,509         | 3,080  | 104.1  | ± 2.68         | 50.5          | 70.0       | 15.0  |
| February ..  | 1,458  | 1,475         | 2,933  | 98.8   | .. 2.56        | 48.13         | 70.1       | 16.7  |
| March ..     | 1,338  | 1,357         | 2,695  | 98.6   | .. 2.56        | 44.15         | 70.9       | 19.5  |
| April ..     | 1,268  | 1,233         | 2,501  | 102.6  | .. 2.76        | 40.96         | 78.2       | 16.1  |
| May ..       | 1,076  | 1,014         | 2,090  | 106.0  | .. 3.12        | 34.25         | 83.3       | 18.1  |
| June ..      | 1,202  | 1,140         | 2,342  | 105.3  | .. 2.92        | 38.4          | 82.6       | 18.2  |
| July ..      | 1,241  | 1,130         | 2,371  | 110.0  | .. 3.04        | 38.85         | 79.9       | 16.6  |
| August ..    | 1,180  | 1,151         | 2,331  | 102.5  | .. 2.85        | 38.2          | 77.4       | 17.1  |
| September .. | 1,248  | 1,178         | 2,426  | 106.0  | .. 2.89        | 39.8          | 77.5       | 15.7  |
| October ..   | 1,386  | 1,257         | 2,643  | 110.2  | .. 2.89        | 43.1          | 76.2       | 12.1  |
| November ..  | 1,429  | 1,359         | 2,788  | 105.2  | .. 2.68        | 45.7          | 74.0       | 11.7  |
| December ..  | 1,594  | 1,520         | 3,114  | 104.9  | .. 2.53        | 50.8          | 71.6       | 12.5  |

Average Minimum Temperature for the year 75.9.

,, Difference .. 15.8.

TABLE IV.

BIRTH AND TEMPERATURE STATISTICS FOR THE YEAR 1929.

| Month.       | Males. | Fe-<br>males. | Total. | Ratio. | Pro.<br>Error. | Rate<br>0/00. | Min.<br>T. | Diff. |
|--------------|--------|---------------|--------|--------|----------------|---------------|------------|-------|
| January ..   | 1,581  | 1,452         | 3,033  | 109.0  | ± 2.66         | 50.2          | 68.6       | 15.4  |
| February ..  | 1,669  | 1,564         | 3,233  | 106.7  | „ 2.52         | 52.98         | 69.7       | 15.2  |
| March ..     | 1,579  | 1,581         | 3,160  | 99.8   | „ 2.4          | 51.7          | 72.0       | 17.4  |
| April ..     | 1,498  | 1,398         | 2,896  | 107.2  | „ 2.68         | 47.45         | 77.5       | 15.3  |
| May ..       | 1,351  | 1,180         | 2,531  | 114.7  | „ 3.08         | 41.5          | 81.8       | 18.0  |
| June ..      | 1,392  | 1,225         | 2,617  | 113.7  | „ 3.00         | 42.9          | 81.1       | 18.9  |
| July ..      | 1,537  | 1,513         | 3,050  | 101.5  | „ 2.48         | 49.9          | 79.8       | 18.9  |
| August ..    | 1,526  | 1,499         | 3,025  | 101.9  | „ 2.49         | 49.6          | 77.7       | 16.5  |
| September .. | 1,525  | 1,472         | 2,997  | 103.5  | „ 2.54         | 48.9          | 77.8       | 14.5  |
| October ..   | 1,487  | 1,333         | 2,920  | 111.5  | „ 2.85         | 46.2          | 75.9       | 14.1  |
| November ..  | 1,484  | 1,411         | 2,895  | 105.1  | „ 2.64         | 47.5          | 72.9       | 11.4  |
| December ..  | 1,594  | 1,468         | 3,062  | 108.6  | „ 2.64         | 50.23         | 70.9       | 13.0  |

Average Minimum Temperature 75.5.

„ Difference .. 15.7.

TABLE V.

BIRTH AND TEMPERATURE STATISTICS FOR THE YEAR 1930.

| Month.       | Males. | Fe-<br>males. | Total. | Ratio. | Pro.<br>Error. | Rate<br>0/00. | Min.<br>T. | Diff. |
|--------------|--------|---------------|--------|--------|----------------|---------------|------------|-------|
| January ..   | 1,626  | 1,509         | 3,135  | 107.7  | ± 2.58         | 50.76         | 67.7       | 19.9  |
| February ..  | 1,646  | 1,621         | 3,267  | 101.6  | „ 2.39         | 53.55         | 70.5       | 15.2  |
| March ..     | 1,456  | 1,390         | 2,846  | 104.9  | „ 2.65         | 46.65         | 74.9       | 15.2  |
| April ..     | 1,483  | 1,361         | 2,844  | 109.0  | „ 2.72         | 4.66          | 76.9       | 16.5  |
| May ..       | 1,357  | 1,171         | 2,528  | 115.7  | „ 3.1          | 42.4          | 79.3       | 17.5  |
| June ..      | 1,539  | 1,432         | 2,971  | 107.6  | „ 2.66         | 49.0          | 79.1       | 17.0  |
| July ..      | 1,624  | 1,459         | 3,083  | 108.8  | „ 2.63         | 51.1          | 80.5       | 17.4  |
| August ..    | 1,630  | 1,486         | 3,116  | 109.5  | „ 2.64         | 51.1          | 78.1       | 17.8  |
| September .. | 1,633  | 1,624         | 3,257  | 100.5  | „ 2.37         | 53.35         | 73.3       | 20.4  |
| October ..   | 1,646  | 1,490         | 3,136  | 110.3  | „ 2.65         | 48.4          | 74.9       | 10.2  |
| November ..  | 1,529  | 1,506         | 3,035  | 101.5  | „ 2.47         | 40.5          | 71.8       | 10.7  |
| December ..  | 1,440  | 1,435         | 2,875  | 100.1  | „ 2.58         | 38.36         | 70.7       | 12.5  |

Average Minimum Temperature 74.8.

„ Difference .. 14.9.



TABLE VI.

BIRTH AND TEMPERATURE STATISTICS FOR THE YEARS  
1926-30.

| Month.     | Males. | Fe-<br>males. | Total. | Ratio. | Pro.<br>Error. | Rate<br>0/00. | Min.<br>T. | Diff. |
|------------|--------|---------------|--------|--------|----------------|---------------|------------|-------|
| January .. | 7,747  | 7,412         | 15,159 | 104.4  | ± 1.14         | 49.6          | 68.9       | 16.2  |
| February.. | 7,881  | 7,535         | 15,416 | 105.9  | „ 1.15         | 50.5          | 69.7       | 17.0  |
| March ..   | 7,192  | 7,143         | 14,335 | 100.7  | „ 1.13         | 46.6          | 73.6       | 16.6  |
| April ..   | 6,850  | 6,543         | 13,393 | 104.9  | „ 1.22         | 43.8          | 78.2       | 15.8  |
| May ..     | 6,180  | 5,619         | 11,799 | 109.8  | „ 1.36         | 38.87         | 81.6       | 18.0  |
| June ..    | 6,636  | 6,085         | 12,721 | 107.9  | „ 1.29         | 41.8          | 81.5       | 18.3  |
| July ..    | 6,858  | 6,382         | 13,240 | 107.5  | „ 1.26         | 44.71         | 80.0       | 17.4  |
| August     | 6,770  | 6,450         | 13,220 | 105.1  | „ 1.23         | 44.8          | 77.9       | 15.2  |
| September  | 6,882  | 6,583         | 13,465 | 104.7  | „ 1.22         | 45.4          | 76.6       | 16.5  |
| October    | 7,442  | 6,753         | 14,195 | 110.2  | „ 1.25         | 45.5          | 75.4       | 13.7  |
| November   | 7,831  | 7,403         | 15,234 | 105.8  | „ 1.15         | 47.9          | 72.2       | 12.2  |
| December   | 7,896  | 7,676         | 15,572 | 103.8  | „ 1.12         | 49.3          | 70.2       | 13.8  |

Average Minimum Temperature for the period of five years 75.5.

„ Difference .. .. „ 15.9

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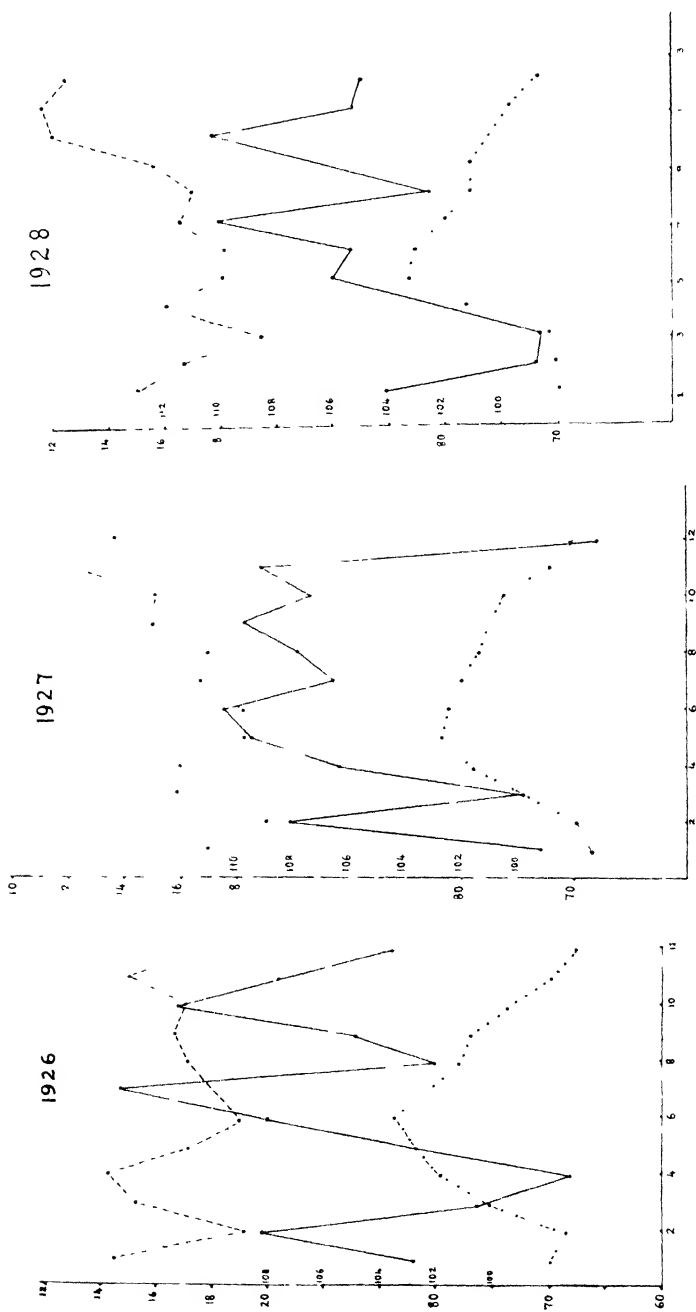
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### DESCRIPTION OF THE GRAPHS.

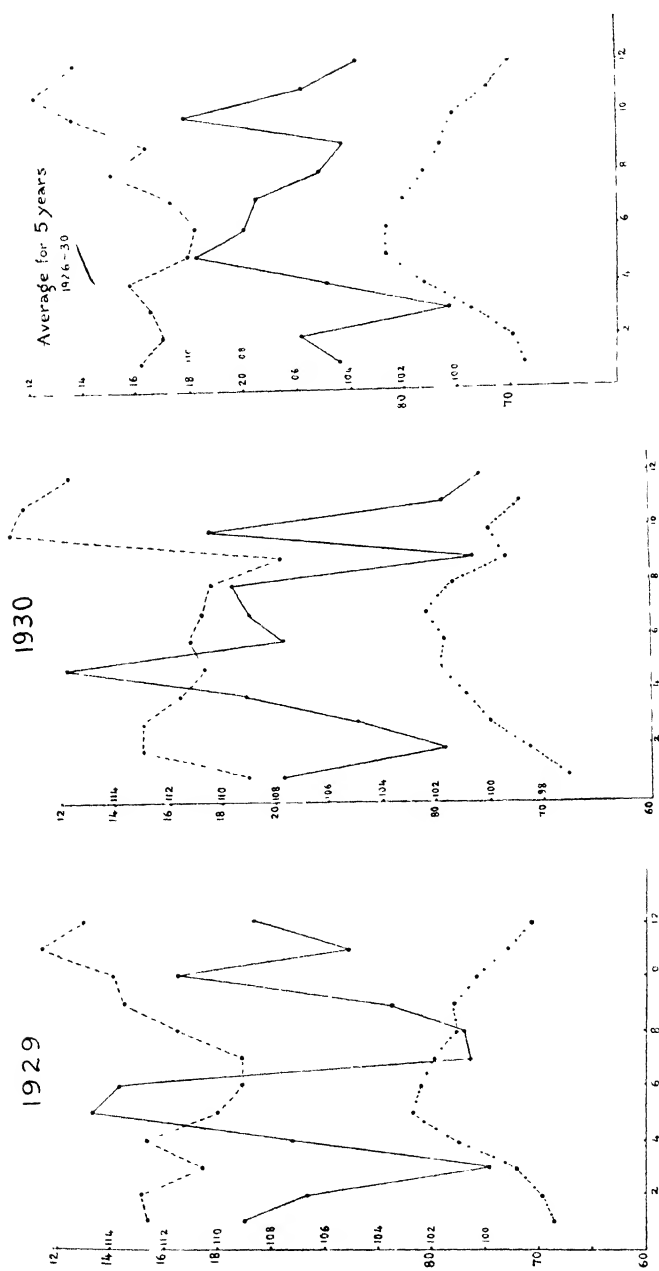
The figures 1-12 along the abscissæ represent the months.

Along the ordinates are represented the Minimum Temperatures, Ratio, and ' Difference '.

|           |                      |
|-----------|----------------------|
| —————     | Ratio.               |
| .....     | Minimum Temperature. |
| — — — — — | ' Difference.'       |









## A Short Note on the Occurrence and Distribution of Diatoms in the Punjab.

By M. ABDUL MAJEED.

(Communicated by K. Biswas.)

In order to study the occurrence and distribution of the Diatoms of the Punjab more than 130 samples were collected by the author from October, 1930 to June, 1931, from various parts of the Province. Majority of these samples came from Lahore and its vicinity, while the remaining had been collected from widely separated places, such as Gujranwala, Hafizabad and Daska.

Diatoms are met with at all times of the year in the Punjab but are most abundant in winter, i.e. from December to February—the period most favourable for their rapid growth and development. Frequent collections from different places clearly show that the Pennatæ are much more common than the Centricæ.

*Sub-aerial Association.*—The bare wet garden lawns and diverse other moist places generally harbour species of *Navicula* and *Nitzschia*, invariably associated with other algæ which give a greenish brown colour to the surface. In such areas, as a rule, a species of *Navicula* is very prevalent. Specimens of the same species collected from the above places show differences in length from those found in ponds. The sides of the drying ponds are frequently inhabited by *Cyclotella meneghiniana*, *Navicula* sp. and *Nitzschia subtilis*. Mostly during the months of December and January *Nitzschia vermicularis*, *Surirella splendida*, *S. ovalis* var. *ovata* were met with abundantly on the sides of drying ponds at Hafizabad and Gujranwala. In the vicinity of Badami-bagh Railway Station, from the sides of a drying pool overshadowed by shrubs and trees, some centric forms, *Navicula cuspidata*, and species of *Nitzschia* were secured in good numbers. *Synedra ulna*, *Eunotia monodon*, and species of *Amphora* were also met with in such localities. Such forms are also found, though never abundant, in watered tennis-lawns, fields and damp pastures.

*Aquatic Association.*—The Diatoms cannot stand the swift current of water but if it is slow, which is generally the case along the banks, they may be found attached to water plants. From amidst the branches of a fallen tree in a portion of the river Ravi, where the flow of water was very rapid, muddy water was taken in a tube which on examination was found to contain *Gyrosigma acuminatum*. The pools in the



neighbourhood of the river formed by the overflow of its water are rich in Diatoms.

The channel known as *Chotta Ravi* at Lahore, because of its slow flow of water, abounds in species of *Synedra*, *Navicula radiosa*, *N. nirdula*, species of *Gyrosigma*, *Cymbella tumida*, *C. excisa* and *Amphora ovalis*. Free floating greenish masses on the surface of the slowly flowing water in the drains of gardens always bear *Anomoeoneis sphaerophora* in countless numbers. In drains, emitting bad smell, a species of *Navicula* is very common and forms a thin brownish layer along their edges. They are also frequented with *Cyclotella meneghiniana*, *Synedra ulna*, *S. danica* and *Nitzschia* sp. In *Chotta Ravi*, many a time it was noticed that, where the water is slow and shallow, species of *Cocconeis*, *Gomphonema* and *Epithemia* are found on the algal filaments attached to Gastropod shells. They are also met with adhering to grass blades and to Gastropod shells themselves.

The ponds, pools and tanks are the most productive places *Synedra ulna*, *S. danica*, *S. affinis*, *Eunotia minuta*, *Anomoeoneis sphaerophora*, *Stauroneis anceps* var. *acuta*, *Amphora ovalis*, *Nitzschia subtilis*, *N. palea* and *N. kutzingiana* float freely on the surface of the water. In Daska and Ghartal, in most of the ponds the predominance of Desmidiaceæ and Myxophyceæ render the existence of Diatoms rather difficult. All the material that was collected therefrom presented only *Anomoeoneis sphaerophora*.

The epiphytic Diatoms form the more interesting part of the study of the algal flora of the Punjab. The filamentous algæ are found covered with the species of *Synedra*, *Achnanthes hungarica*, *Cocconeis placentula*, *Gomphonema intricatum*, *G. subapicatum*, *G. subapicatum* var. *stipitatu*, *G. constrictum* and *Epithemia argus* frequently occurring in the pools of the Ravi near Shahdara and Shahlamar Bagh Tanks. They have mucilaginous hyaline stalks attached to filaments growing on the surface of submerged plants and other objects. Interspersed amongst them are *Melosira varians*, *M. italica*, *Synedra ulna* var. *aqualis*, *Cocconeis placentula* var. *lineata*, *Gomphonema subclavatum*, *G. capitatum*, *Cymbella tumida*, *C. lanceolata*, *C. cistula*, *Amphora ovalis*, *A. elliptica*, *Epithemia turgida*, *Cystopleura hyndmannii*, etc. Individuals of the genera *Eunotia* and *Achnanthes* are occasionally met with, but are insufficient for specific identification. Sometimes epiphytic Diatoms are detached from their substrata, and are seen floating freely mixed with other algæ.

A number of Naviculoid forms are met with on the sediment, all mixed up with mud. Of these, *Navicula diploneis*, *N. elliptica*, *N. radiosa*, *N. cuspidata*, *Gyrosigma acuminatum* and *Nitzschia vermicularis* form gelatinous slimy masses at the bottom. *S. affinis* and *Nitzschia* sp. are also found.

Of all the Diatoms, *Anomoeoneis sphaerophora*, *Navicula*

*sp.* and *Nitzschia palea* are the most abundant and dominant. They are more or less cosmopolitan and are universally distributed throughout the Punjab. *Surirella ovata* and *S. splendida*, which are so common at Gujranwala, have not been found in Lahore so far; whereas species of *Rhopalodia* and *Epthemia* seem to be restricted to Lahore and its vicinity; they seem to form an association. It is of interest to note that species of *Asterionella* and *Tabellaria*, which are so prevalent in Europe, seem to be quite absent in the Punjab.

I am much indebted to Dr. S. L. Ghose, F.L.S., for his valuable help and keen interest in the course of my work.

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## St. Thomas and a Kushān King.

By HARIT KRISHNA DEB.

In 1911-12, the late Rai Bahadur Pandit Radhakrishna discovered near the village of Mat, situated on the left bank of the Jumna, about 9 miles from Mathura, a group of statues, one of which declares itself to be a statue of Kanishka. A torso found alongside bears an inscription, perhaps fragmentary, of three letters read first by Dr. Vogel as : *M a s t ā n a*. Dr. Benoytosh Bhattacharyya (*JBORs*, 1920, p. 53) proposed to read it as : *Ṣ a s t a n a* and identify it with *C a s t ā n a*—a name well known as having been borne by the ruler of Ujjain in the days of Ptolemy who gives the name as 'Tiastanes'. The Śaka satraps of Ujjain have in this way been sought to be connected with the Kushān dynasty. Dr. Vogel mentions the suggested identification with reserve : 'On a bien hasardé cette conjecture, mais elle paraît un peu téméraire' (*La Sculpture de Mathura*, Paris et Bruxelles, 1930, p. 22).

The *reading* appears to me to be clearly : *M a s t ā n a* : compare the *ma* in line 1 of the British Museum stone inscription of the time of Kanishka (*Ep. Ind.*, IX, Pls. facing pp. 239, 240). The *akṣara* is written apparently in two stages : first, a triangle with an elongated right limb, then a curve to the left. It bears no resemblance to any known *ṣa* of the period. I do not enter into the philological difficulties of equating a supposed *Ṣ a s t a n a* with *C a s t ā n a* : Dr. Bhattacharyya has drawn upon no ancient analogy appertaining to the provenance of the find but has satisfied himself with two modern comparisons, the Bengali *vulgo* *Cinivāsa* for Skt. *Śrīnivāsa*, and the villagers' way of pronouncing Belche as Belshe. Nor has he attempted to explain the supposed transformation of *ṣta* to *sta*.

The name then is *Mastāna*, and no connection with *Castana* can be presumed. It was apparently the name of a prince, related in all probability to the Kushān dynasty, who enjoyed the privilege of apotheosis like the Roman emperors to whom the Kushāns owed so much. We seem to come across the same name in an Ethiopic version of the Acts of St. Thomas. The Syriac version by which the legend is usually known mentions a king *Mazdai*, ruling in 'India superior' according to some Latin versions (*Indian Antiq.*, 1903, p. 7), who is said to have put St. Thomas to death.<sup>1</sup> In an Ethiopic account (*Ibid.*,

<sup>1</sup> Later writers name the city where the apostle suffered martyrdom as *Kalamina* (*et var. loc.*) which was perhaps *Kaman* in Bharatpur State, not very far from Mathurā, where an inser. of the period was found (Luders List, No. 12).

p. 157), the name is given as: *M a s t y o s*, *M a y t e w a n y a n o s*, *M a s t e y o s*, *M a t s e y o s*. The fourth form is evidently due to simple metathesis of *ts* for *st* of the first and third forms which are practically identical. The second form *M a y t e w a n y a n o s* seems to go back to *\*M a y t y a n a* or *\*M a y t w a n a*, with the last two syllables *-wana* or *-yana* repeated. For the *yt* we may reasonably think of an emendation *st*, in view of the agreement between forms 1 and 3 and, with metathesis, also form 4. The resulting form *\*M a s t w a n a* or *\*M a s t y a n a* can be easily equated with *M a s t ā n a*, on the supposition that the *y* or *w* of the second syllable has been omitted, and the vowel has, by way of compensation, been lengthened. Some central form like *M a s t y a n a* has in any case to be reconstructed out of the variants, and its nearness to *M a s t ā n a* recognized as aiding an identification. What appears to render the undertaking nearly devoid of all risk is the circumstance that Gondophernes, who is mentioned in the Christian legend as an Indian king primarily responsible for the advent of St. Thomas, is associated in the Takht-i-Bahai inscription with a Kushān prince *Erjhūṇa Kapa*, and the inscription seems to contain the word *Guṣaṇa* (=Kushān).<sup>1</sup>

The king who is reputed to have put St. Thomas to death will thus have been a Kushān prince whose torso we possess in an archæological museum to-day.

<sup>1</sup> At the end of its line 3 (... *Belasamisa Guṣanasa*) Senart and Boyer read *goyana*. But the *u*-stroke in *Gu* is clear, and the next letter can only be 'Sa' since there is a distinct vertical line below the curve which alone is read by the two French scholars as *ya*. For the name of the *Gusana*, compare *Belaśamuśo* on the Mathura Lion Capital (usually read as *Khalaśamuśo*, ignoring the projection to the left of the first syllable): I am tempted to connect it with Babylonian *Bel* and *Shamash*. The epithet *erjhuna* denotes, I think, 'white' (cf. Skt. *arjuna*): the epithets *Kujula* and *Kara* (of Kedphises I) being parallel in import ('red'—Turk. *Kizil*; 'black'—Turk. *Kara*).

## Susa in Sanskrit Literature.

By HARIT KRISHNA DEB.

In the *Journal of the American Oriental Society*, Vol. 42, pp. 194 ff., and Vol. 45, pp. 72 ff., I brought forward evidence to shew that the king of Magadha, usually called Śīśunāka, who reigned *circa* 700 B.C., was in all probability a Susinak, that is, a prince from Susa (*Bibl. Shushan*). I have since then come across a passage in the *Purāṇas* referring, as it appears, directly to Susa.

The allusion occurs in an astronomical chapter detailing features found in Hindu astronomy of a period prior to the operation of Grecian influences. In chapter 124 of the *Matsya Purāṇa*, which is pronounced by Pargiter to contain the most ancient version of the dynastic account, we read :—

*madhyagaścāmarāvatyām yadā bhavati bhāskaraḥ  
vaivasvate saṁyamane udyan sūryaḥ pradṛśyate  
susāyāmardharātrastu vibhāvaryastameti ca  
vaivasvate saṁyamane madhyāhne tu raviryadā  
susāyāmatha vāruṇyām uttiṣṭhan sa tu dṛśyate  
vibhāvaryāmardharātram mähendryāmastameva ca  
susāyamatha vāruṇyām madhyāhne tu raviryadā  
vibhāvaryām somapuryām uttiṣṭhanti vibhāvasuḥ  
mahendrasyāmarāvatyām udgacchati divākaraḥ  
ardharātram saṁyamane vāruṇyāmastameti ca.<sup>1</sup>*

We are at once reminded of the well-known passage in *Varāha Mihira's Pañcasiddhāntikā*, chapter xv, verse 23—

*udayo yo laṅkāyām so'stamayaḥ saritureva siddhapure  
madhyāhne yamakotīyām romakaviṣaye'rdharātarāḥ sa.<sup>2</sup>*

<sup>1</sup> Cf. *Vāyu Purāṇa*, Ch. 50. A reconstructed account occurs in *Viṣṇu* 11. 8, referring to the rāśis as norms of reference. One verse (195) in Ch. 50 of *Vā.* incidentally alludes to 'the end of Mesa' and 'the end of Tulā' as marking the equinoxes; it is not found in Ch. 124 of *Matsya* and must be a later addition.

The sense of the passage is: 'When it is midday at Amarāvati, it is sunrise at Saṁyamana, midnight at Susā, sunset at Vibhāvari. When it is midday at Saṁyamana, it is sunrise at Susā in Vāruṇī (or Susā-Vāruṇī), midnight at Vibhāvari, sunset at Mähendri'.

<sup>2</sup> The sense is: 'What is sunrise at Lankā is sunset in Siddhapura, midday at Yamakoti, midnight in Romaka-*viṣaya*'. *Viṣaya* here cannot mean an area extending through many degrees of longitude, since in that event 'midnight' would vary locally within such area. *Viṣaya* is sometimes used in the sense of 'district'; and we have other references to *Romaka-nagara*, e.g. in the verses cited by Divēdi in his gloss to *Pañca-siddhāntika*, I. 3. 'Laṅkā' must likewise denote a particular area in the island of Ceylon within which local time would not vary.

Here *Romaka-viṣaya* corresponds clearly to the city of Rome, and a difference of six hours in local time is conceived between *Laṅkā* and *Romaka-viṣaya*; in other words, Rome is placed 90 degrees west of *Laṅkā*.

This estimate could, I think, have been derived only from Ptolemy, directly or indirectly; for, it was Ptolemy who, by piecing together itinerary accounts chiefly of Græco-Roman travellers, for the first time arrived at a map locating the mean longitude of Taprobane almost precisely 90 degrees east of the longitude of Rome.

A difference in local time is likewise specified between *Yavana-pura* (Alexandria) and *Avanti* (conceived to lie due north of *Laṅkā*) in *Varāha Mihira's Pañcasiddhāntikā*, chapter iii, verse 13—

*yavanāntarajā nāḍyah sapṭāvantyām tribhāgasanyuktaḥ  
vārāṇasyām trikṛtīḥ sādhanam anyatra vakṣyāmi.*<sup>1</sup>

Commenting on this passage, Thibaut remarks: 'As a transfer of Hellenistic astronomy could not have taken place without some determination of the interval in longitude, we might assume such a determination to have been made even if no trace of it had been preserved in India'. The 'Hellenistic astronomy' which Thibaut had in view pertains to the Alexandrian school best represented by Ptolemy's work which remained an authority down to the Middle Ages. There seems to have been also a *Roman* school, flourishing in the city of Rome, which reacted on Hindu astronomy, producing a *Romaka-siddhānta* of which we possess a representation in the *Pañcasiddhāntikā*. The name *Romaka-siddhānta* points in this direction.<sup>2</sup>

Applying the principle of Thibaut's observation, we may say that the passage in the *Pañcasiddhāntikā* setting forth a longitudinal difference of 90 degrees between *Laṅkā* and Rome attests the transfer of *Roman* astronomy of a period posterior to Ptolemy. And, upon the same principle, we may base our inference that the Puranic passage cited above attests the transfer of *Chaldæan* astronomy, cultivated at *Susa*, at a period anterior to the advent of Hellenistic astronomy.

The inference is fortified by the fact that there are points of resemblance between Hindu astronomy of the earlier period and *Chaldæan* astronomy. For instance, in both systems, the

<sup>1</sup> The passage is rendered thus by Thibaut: 'The *nāḍikās* arising from the difference in longitude from *Yavana* (i.e. *Yavanapura*) are seven and a third in *Avanti*, nine in *Vārāṇasī* (Benares). It will now explain the calculation (of the difference in longitude) with regard to other places'. A *nāḍikā*=24 minutes. *Yavanapura* is Alexandria.

<sup>2</sup> The Roman school seems to have been a child of the Alexandrian school. Julius Cæsar had to call an 'Egyptian' astronomer (*Sosigenas*) in reforming Roman calendar. The 'year' of the *Romaka-siddhānta* corresponds to the 'year' of Hipparchus.

length of the longest day in the year is valued exactly alike (18 muhūrtas=14 hours 24 minutes). It is not surprising therefore that the same estimate of the longest day is given in the Puranic chapters cited above, alluding to Susa much in the same way as Varāha Mihira alludes to Rome.

It might appear that I have rather tacitly assumed the identity of Susa with the locality named *Suṣā* in the Matsya Purāṇa, ignoring the variant *Sukhā* found in the Vāyu and Viṣṇu Purāṇas and adopted by Alberuni. The difficulty disappears in view of the interchangeability of *ṣa* and *kha*, e.g. in *pākhaṇḍa* and *pāṣaṇḍa* as variants.

A more serious objection would be that mere phonetic identity cannot be relied on for inferring geographical identity, and further evidence is needed before we can accept the equation *Susa*=*Suṣā*. That evidence is fortunately furnished by the same Puranic verses. *Suṣā* is therein stated to be *Vāruṇi* or in *Vāruṇī*. Now, in Fargard I. 18 of the Vendidad, we read—'As the fourteenth best of regions and countries, I Ahuramazda created *Varena* with the four corners'. Where *Varena* precisely lay may be determined from the Pahlavi Vendidad:—

'18. (67) The fourteenth of places and districts produced perfect by me, me who am Auharmazd, was (68) *Varen* the four-cornered, subduing (? the old MSS. have *kir=gir*, "seizing") Mount *Paḍashkhvar*, some say *Kirman*; and its quadrangularity is this, that it stands upon four roads; some say that its city has four gates. (69) At which place *Fredun* was born for the destruction of *Azhi Dahak*.'<sup>1</sup>

The name *Paḍashkhvar* corresponds to *Parokhoaras* (v.l. *Parakhoathras*, *Parokhoatras*, *Parakoatras*) of Strabo (xi. 8. 1).<sup>2</sup> It is a range skirting Susiana on the East, now designated *Chahar Mahal* on the maps. *Varena* is thus localized by at least one ancient authority in Susiana. We can hardly help seeing here a confirmation of our idea that the Puranic reference to *Suṣā* as or in '*Vāruṇī*' corresponds to *Susa* in *Varena* or *Susiana*.

<sup>1</sup> M. Hang, *Essay on the Parsis*, p. 363.

<sup>2</sup> The variants are given in Wilson's *Ariana Antiqua*, p. 147 n.





## The Mauryan Lāts or Dhvaja-Stambhas : Do they constitute an independent order ?

By A. K. MITRA.

(Communicated by Dr. B. S. Guha.)

The only examples of Mauryan columnar architecture surviving above ground are the so-called *lāts* or columns standing in the open. In a paper contributed to the Anthropological Section of the Nineteenth Indian Science Congress, Bangalore,<sup>1</sup> I have adduced evidence from ancient inscriptions and Pali and Sanskrit texts to show how the 'Dhvaja-Stambhas' (lit.—standard columns) were supposed to be dwelt in by protecting spirits, etc. and worshipped in ancient times and that the above-mentioned *lāts* must be classed with them. Evidence is not wanting to show that wooden or metal standards were also in use in ancient India and those were doubtless the prototypes from which the *lāts* or *dhvaja* pillars derived their origin. There is nothing, however, to indicate that the latter preserve the decorative designs and the architectural form of the older wooden or metal *dhvajās*. No doubt their conversion into stone provided the occasion for the introduction of ornamental motifs, etc. appropriate for the new material, and these betray many affinities with the motifs of Greek and Achæmenian arts.

Writing in 1927 on Mauryan Art,<sup>2</sup> I pointed out certain divergences in forms existing between the surviving capitals of the Mauryan *Lāts*. These seem to mark one ascending scale of artistic execution, achieved in different periods of time. Further proof to this effect has been given by Rai Bahadur Ramaprasad Chanda from the texts of the Rupnath and Sahasram rock inscriptions and the seventh pillar edicts of Asoka.<sup>3</sup> 'Some at least of the Pillars that bear his edicts,' says he, 'must have been in existence before Asoka proposed to engrave edicts on them, and some of these may even be pre-Asokan, while others are his own Dharmastambhas, that is to say, pillars erected by himself for engraving edicts of Dharma on them.' A comparative study of forms made by him has also confirmed the above conclusions. As the usage of engraving

<sup>1</sup> Mitra, A. K., The Dhvaja or Standard in India. *The Morning Star*, Patna, May-June, 1932, pp. 179-188; Origin of the Bell-Capital. *Ind. Hist. Quarterly*, June, 1931, pp. 238-244.

<sup>2</sup> Mitra, A. K., Mauryan Art. *Ind. Hist. Quarterly*, Sept., 1927, pp. 541-553.

<sup>3</sup> Chanda, Ramaprasad., The Beginnings of Art in Eastern India, etc. *Mem. Arch. Surv. Ind.*, No. 30, p. 31.

edicts on the pillars commenced only after Asoka had been a king for some time, the latter might have received his inspiration in this respect from Egyptian, or Achæmenian parallels.<sup>1</sup> But there is nothing to show that the pillars erected by Asoka were designed expressly for engraving his edicts. The Divyavadana preserves legends of Asoka's pilgrimages to the sacred sites of Buddhism, where he offered worship and set up *Chihnas* or emblems.<sup>2</sup> These legends are corroborated by the mention of the visit to the Sambodhi (Bodh-Gaya) in the Rock Edict VIII.<sup>3</sup> The inscribed pillars of Nigali Sagar and Rumindei are examples of such emblems<sup>4</sup> set up by Asoka.

Pillars standing on the sacred sites of Buddhism would be naturally associated with Asoka in subsequent times. Fa Hien gives a legend ascribing the Sankasya pillar (height : 30 *chow* or 50 cubits) to him, and mentions two columns bearing his edicts at Pataliputra and Ne-le.<sup>5</sup> The two pillars at Sravasti, crowned by the ox and the wheel respectively, are noticed by him without any reference to Asoka,<sup>6</sup> to whom their erection is attributed by Yuan Chwang.<sup>7</sup> The latter pilgrim ascribes the Kakusandha pillar (height : 30 ft.), the Kanakamuni pillar (height : 20 ft.) as well as Lumbini pillar<sup>8</sup> to Asoka, and this has been partly confirmed by the discovery of the last two columns.<sup>9</sup> On the other hand, his silence as to the authorship of the Vaisali pillar (height : 50 ft.) at an Asoka tope and the Sarnath column (height : 70 ft.)<sup>10</sup> is significant and should make us wary of traditional evidence of the kind recorded by both the pilgrims.

The Sanchi and the Sarnath pillars with their unique capitals and edicts for the guidance of the Buddhist *Saṅgha* could only have been erected by Asoka. Those from Allahabad (Kosambi), Delhi (Mirath and Topra), Lauriya Araraj, Lauriya Nandangarh and Rampurva (lion) belong to the class of *Śīlā-stambhas* which bear the Imperial Edicts, but we cannot be

<sup>1</sup> Herodotus, IV, 87, 91.

<sup>2</sup> Cowell, E. B. and Neil, R. A., *Divyavadana*, Cambridge, 1886, p. 389.

<sup>3</sup> *सो देवानं प्रियो प्रियदक्षि राजा दसवर्षा-भित्तितो संतो चयाय संवोधिं ।* Girnar, VIII, C.

<sup>4</sup> Hultzsch, E., *Inscriptions of Asoka*. (*Corp. Inscr. Ind.*, Vol. I), Oxford, 1925, pp. 164-165.

<sup>5</sup> Legge, J., *Fa Hien's Record of Buddhistic kingdoms*. Oxford, 1886, pp. 50-51, 80.

<sup>6</sup> Legge, J., *Fa Hien's Record of Buddhistic kingdoms* Oxford, 1886, p. 56.

<sup>7</sup> Watters, T., *On Yuan Chwang's Travels in India*, Vol. I, London, 1904, p. 383.

<sup>8</sup> Watters, T., *On Yuan Chwang's Travels in India*, Vol. II, London, 1905, pp. 5-7, 14-15.

<sup>9</sup> Mukherjee, Purna Chandra, A Rep. on a Tour of Exploration of the Antiquities in the Tarai, Nepal. February and March, 1899, Calcutta, 1901, pp. 2, 4-5, 30, 34-35.

<sup>10</sup> Watters, T., *On Yuan Chwang's Travels in India*, II, 50, 65.

certain that some of them had not been set up in the two preceding reigns.

*Distribution and enumeration*—The present distribution of this type of Mauryan columns is between Delhi in the west, Besarh in the east and Sanchi in the south. It is well-known, however, that the two Delhi pillars were brought by Firoz Shah from Mirath and Topra. There were other pillars, like the one crowned by an elephant (height : 50 ft.) at Rajgir which have disappeared.<sup>1</sup> So far as I am aware, the following specimens are known :—Allahabad : 1 ; Besarh : 1 ; Delhi : 2 ; Gutiva : 1 ; Kosam : 1 ; Lauriya Araraj : 1 ; Lauriya Nandangarh : 1 ; Nigali-sagar : 1 ; Rumindei : 1 ; Rampurva : 2 ; Sanchi : 1 ; Sarnath : 1 ; Palladpur : 1 ;<sup>2</sup> and a capital from Sankissa.

The emblems so far known from the top of the columns are (i) the lion (Rampurva, Allahabad, Besarh, Nandangarh, Sanchi and Sarnath) ; (ii) the bull (Rampurva) ; (iii) the elephant (Sankissa) and the wheel (Sarnath). A garuda is known to have crowned the Araraj column<sup>3</sup> and a horse is mentioned by Yuan-Chwang in connection with the Lumbini pillar.<sup>4</sup> So far as I am aware the latter animal does not feature among the battle standards mentioned in the Mahabharata. It is noteworthy that the lion, the bull, the wheel, the garuda and the elephant are common features of Jaina, Buddhist and Brahminic iconography and their worship may date from before the rise of the respective doctrines, to which they were finally appropriated.

*Foundations*—The Mauryan Lāts are not supported by a pedestal or stylobate, but like wooden dhvajās of to-day rise directly from the ground. The effect of the column is consequently less<sup>5</sup> imposing than the columns of Trojan and Marcus Aurelius in the Roman Forum and perhaps less elegant, but thoroughly in keeping with the simple undecorated character of the shaft, which is embellished only with the brilliant silicious varnish. On the other hand the absence of a high moulded base simplifies the nature of the foundations. The bottom of the Sanchi column, for example, rested directly on the living rock, the shaft being embedded to a depth of 8 ft. in a packing of heavy stones, retained in position by massive walls, on the top of which was laid a floor of *bajri* 6 inches in thickness.<sup>6</sup>

<sup>1</sup> Watters, T., *On Yuan Chwang's Travels in India*, II, p. 162.

<sup>2</sup> The Palladpur pillar is mentioned by Rai Bahadur Daya Ram Sahu in his list of Mauryan pillars—*A.S.I.A.R.*, 1907-08. I am indebted to Babu Adrish Kumar Banerjee for kindly drawing my attention to this pillar. See *J.A.S.B.*, 1838, December, p. 1055, announcing the discovery by Captain J. S. Burt.

<sup>3</sup> Foucher, A., *Iconographie Bouddhique*, p. 55.

<sup>4</sup> Watters, T., *On Yuan Chwang's Travels in India*, II, p. 14.

<sup>5</sup> Carotti, G., *A History of Art*, Vol. I, London, 1908, pp. 271-72.

<sup>6</sup> *Arch. Surv. of Ind., Ann. Rep.*, 1913-14, pp. 3-5. (Henceforth *A.S.I.A.R.*)

The Gutiva,<sup>1</sup> Sarnath,<sup>2</sup> Rampurva (lion)<sup>3</sup> and Delhi Topra<sup>4</sup> and Palladpur pillars were set up with the lower ends of their shafts resting on rectangular slabs of stone buried underground, measuring in the second, third and fourth cases,  $7' \times 5' 8\frac{1}{2}" \times 10"$ ;  $8' \times 6' \times 1' 6"$ ; and  $7' 9" \times 1' 9"$  'corner to corner' respectively. The slab below the Rampurva (lion) pillar had been secured with stout *śāl* wood stakes at the four corners, two of which were found in a decayed condition. The one at the bottom of the Gutiva pillar was supported on brick masonry. The Sankissa pillar, the shaft of which has disappeared was supported by a base of brick-work  $11' 9" N \times S$  and  $10' 2" E \times W$ , with a large circular hole in the centre for accommodating the shaft.<sup>5</sup> No stone slab was found below the Kosam pillar, which was set up directly on the soil with a low brick platform around it.<sup>6</sup> The purpose of laying the stone slabs at the bottom was obviously to counteract the vertical thrust due to the weight of the pillar by means of their horizontal surface. Its absence at Sankissa and Kosam may be regarded as an indication of their comparatively older chronological position in the series of Mauryan Lāts. Until, however, further data are forthcoming from fresh excavations, particularly at the Besarh column, it would be hazardous to arrive at a definite conclusion on this point.

#### MORPHOLOGY OF THE PILLARS.

Morphologically, a pillar is divisible into three main parts—the base, the shaft and the capital. The Doric column was originally without a base, but was supported on a stylobate, usually of three steps, a base being added only by the Romans. The Ionic, Corinthian, Tuscan and Composite orders are all characterised by bases. But the Mauryan Lāts have no base or stylobate and start directly from the ground. Consequently, they comprise only two parts, the shaft and the capital, both monolithic in character, the maximum height definitely known being  $43' 5"$  (Rampurva). They are thus much smaller than the

<sup>1</sup> Mukherjee, P. C., A Rep. on a Tour of Exploration of the Antiquities in the Tarai, Nepal. February and March, 1899, Calcutta, 1901, pp. 31-32.

<sup>2</sup> *Arch. Surv. of Ind. Ann. Rep.*, 1904-05, pp. 68-70.

<sup>3</sup> *A.S.I.A.R.*, 1907-08, pp. 181-185.

<sup>4</sup> Cunningham, A., *Corp. Inscr. Indicarum*, Vol. I, Inscriptions of Asoka, Calcutta, 1877, pp. 34-36.

<sup>5</sup> *Arch. Surv. Rep.*, Vol. I, pp. 274-275; Vol. XI, pp. 22-23.

<sup>6</sup> *Arch. Surv. Rep.*, Vol. I, pp. 309-311; *A.S.I.A.R.*, 1921-22, pp. 9 and 45. The small length of the roughly dressed part of the shaft makes one doubt whether the pillar did not suffer from some breakage in ancient times, in which case the brick plinth may be of late construction. It is noteworthy that Chanda doubts whether the brick plinth of Rampurva is as ancient as the pillar.

Obelisk of Thothmes III from Heliopolis (height : 105 ft.) now in the Piazza of S. John Lateran, Rome, as well as the 'Cleopatra's Needle', London (height : 68' 6"). The fact, that they are distributed mainly over the Gangetic valley, is perhaps an indication that even with these small shafts, their transport, probably effected as in case of the obelisks on barges, presented considerable difficulties which could not be overcome, except at Sanchi. The Gutiva and the Allahabad columns have in the lower part of their shafts 4 and 2 projections respectively 'similar to the trunnions of a piece of ordnance, intended probably as a place of fixture for the ropes which might be used in erecting them'. Nothing is known as to the exact method of erection, but as the pillars were small in size, it could not have been a difficult procedure.

*The Shaft*—The shaft was buried underground up to certain height (Kosam : 1' 9" ; Delhi-Topra : 7' 7" ; Sarnath : 7' 5" ; Sanchi : 8" ; Palladpur : 9" ; Allahabad : 7' 7" ; Rampurva : 8' 9½"). This portion of the shaft was meant to be hidden from the eye and is roughly circular and hammer-dressed. The Gutiva pillar is probably an exception.

The actual column begins where the rough portion ends, giving place to the smoothly chiselled and highly varnished portion of the shaft. The latter is circular in section and tapers upwards. At the top is a drum-shaped tennon, with a hole in the centre for admitting a copper dowel, both being designed to maintain the capital in position. In the Sanchi column Cunningham noted a distinct entasis, comprising 'an increase in the thickness of the shaft, of rather more than 1", at two-thirds of its height'.<sup>1</sup> Similar data have not been collected for the other pillars.

*The Capital*—Unlike the Egyptian and Iranian architects, and the Indian architects of later times, the Mauryan architect restricted the decoration of these pillars to the capital alone. The principal feature of the capital is the lower member, resembling in form a suspended bell, decorated with arrises enclosed between festoons and falling downwards.<sup>2</sup> Its solid shape and decorative theme bear striking resemblance to the campaniform bases of the Achæmenian pillars. The torus and the fillet mouldings occurring at the top and the bottom respectively of the said bases correspond to the same mouldings at the top of the Sarnath and the

<sup>1</sup> Cunningham, A., *The Bhilsa Jopes*, London, 1854, pp. 193-196.

<sup>2</sup> An exception is to be made in the case of the Allahabad column, where the crowning lion with the round abacus was placed directly on the top of the shaft, unless the campaniform capital had been neatly removed by the Guptas or by Jahangir.

Burt, T. S., A description, etc. of the Ancient Stone Pillar at Allahabad, *J.A.S.B.*, March, 1834, p. 106 and Pl. Cf. Kittoe's note in *J.A.S.B.*, March, 1835, p. 127.

Rampurva capitals and at the bottom of those from Gutiva and Rumindei.<sup>1</sup> The capital of the Allahabad pillar projects abruptly from the shaft, the same as the Achæmenian capitals.<sup>2</sup> In the other cases this abruptness of transition from the shaft to the capital is reduced by putting in some mouldings at the lower end of the capital. The affinities of form and ornament, considered in the light of the cultural and commercial relations existing at the time between India, Iran, and Western Asia have led me to the conclusion that the Mauryan architect had borrowed this motif from Achæmenian art. This has been questioned by Dr. A. Coomaraswamy and the controversy is still continuing.

After the intervention of one or two mouldings the campaniform moulding is surmounted by an abacus, which is rectangular at Besarh and circular in the other capitals. This is decorated on the lateral aspect with animal and floral patterns.

*The Crowning Sculptures*—The crowning sculptures are the animal and the wheel emblems enumerated above. Apart from their Hellenistic modelling, some of them are typologically related to foreign prototypes. The lion seated on its haunches (Besarh, Rampurva, and Nandangarh) is of a type familiar to us in Persipolis.<sup>3</sup> The adorsed lions (Sanchi, Sarnath) recall the design of 'a socle' (pedestal) of horse-shoe shape carved with five figures of sphinxes discovered by Baron Von Oppenheim from 'Tell Halaf in the Northern border of Mesopotamia' as well as a circular capital from an Egyptian tomb painting.<sup>5</sup>

The mouldings employed on the capitals are the fillet and the torus applied below and above the campaniform member. Both may be either plain or decorated on the surface without the outline of the moulding in profile being disturbed. Thus the torus may be either corded or cut up into the bead and reel design.

*Ornaments*—Among the floral ornaments represented on the abaci of the capitals we note the lotus, the palmette, and the honeysuckle; rows of geese among the birds; and the lion, the bull, the horse, and the elephant among quadrupeds. The latter appear on the Sarnath capital, with a wheel emblem between each animal. As the Mauryan ornaments will be discussed by me in a separate paper, I shall not discuss them here.

<sup>1</sup> Mukherjee, P. C., A Rep. on a Tour of Exploration of the Antiquities in the Tarai, Nepal. February and March, 1899, Calcutta, 1901, Pl. XVI, figs. 2 and 3.

<sup>2</sup> See note 2 on page 321. Cf. Rumindei capital.

<sup>3</sup> Perrot, G. and Chipiez, C., *History of Art in Persia*, London, 1892, fig. 65, p. 138.

<sup>4</sup> *Illustrated London News*, April 22, 1933, p. 562, fig. 3.

<sup>5</sup> Perrot, G. and Chipiez, C., *History of Art in Persia*, London, 1892, fig. 43, p. 112.

## MEASUREMENTS.

Unfortunately, these Mauryan columns are still awaiting systematic measurements, and in some cases even the foundations have not yet been examined. The measurements taken by Sir Alexander Cunningham and other officers of the Archaeological Survey of India are tabulated on the next page in table 3. The module used by me being  $\frac{1}{2}$  the lower diameter.

An analysis of table 3 shows that detailed measurements have not been taken in all the cases and even the most important measurements, that of the lower diameter of the shaft, has been neglected. The diminution of the tapering shaft per foot as calculated by Cunningham is omitted there because of the entasis observed by him on the Sanchi column, but a roughly constant ratio seems to be established for total diminution: Lower diameter of shaft.

Calculated on the basis of 1 module = 1 diameter, the following results are obtained for the shafts:—

TABLE 1.

|               |      |                 |      |
|---------------|------|-----------------|------|
| Allahabad     | 12.0 | Sanchi          | 11.3 |
| Sarnath       | 13.2 | Rampurva (lion) | 9.0  |
| L. Nandangarh |      | 11.1            |      |

The tables 1 and 3 show a high variability for the ratio—Height of shaft: module, which is also characteristic of the ratio—Height of capital: module. The ratio of the Height of shaft: Height of capital is tabulated as follows:—

TABLE 2.

| Locality of pillar. | Ht. of capital. | Ht. of shaft. | Shaft capital. |
|---------------------|-----------------|---------------|----------------|
| Sarnath             | 7' 0"           | 31' 0"        | 4.4            |
| Sanchi              | 6' 10½"         | 34' 0"        | 4.9            |
| Rampurva (lion)     | 7' 5"           | 36' 0"        | 4.9            |
| L. Nandangarh       | 6' 10"          | 32' 9½"       | 4.8            |

An analysis of table 2 shows a positive correlation between the heights of the capital and the shaft, the variability being not remarkable. In the absence of further data, these results cannot however be regarded as conclusive. All the same, these tables indicate firstly (a) that the pillars varied much among themselves, and secondly (b) that a system was not altogether lacking in their proportions, e.g., in the ratios—Total diminution of shaft: Lower diameter and height of shaft: Height of capital. The variability may be an indication of the different chronological positions of the pillars.



TABLE 3.

| Locality of pillar.          | Lower diam. meter.    | Module             | Actual ht. of shaft.  | Ht. of shaft module. | Ht. of Capital.       | Ht. of Capital module. | Total height.          | Total height module. | Ht. of shaft, extant or calculated. | Lower diam. of shaft, extant or exposed. | Upper diam. of shaft, extant or exposed. | Total diminution: Lower diameter. |
|------------------------------|-----------------------|--------------------|-----------------------|----------------------|-----------------------|------------------------|------------------------|----------------------|-------------------------------------|------------------------------------------|------------------------------------------|-----------------------------------|
| Allahabad                    | 2' 11 $\frac{1}{2}$ " | 17 $\frac{1}{2}$ " | 35' 0"                | 23.9                 | 7' 0"                 | 6.0                    | 38' 0"                 | 32.6                 | ..                                  | 2' 2"                                    | 2' 2"                                    | 0.26                              |
| Sarnath                      | 2' 4"                 | 14"                | 31' 0"                | 26.6                 | ..                    | ..                     | + 2' 9"                | ..                   | ..                                  | 1' 10"                                   | 1' 10"                                   | 0.21                              |
| Sanchi                       | 3' 0"                 | 18"                | 34'                   | 22.7                 | 6' 10 $\frac{1}{2}$ " | 4.6                    | 40' 10 $\frac{1}{2}$ " | 27.2                 | ..                                  | 2' 3 $\frac{1}{2}$ "                     | 2' 3 $\frac{1}{2}$ "                     | 0.23                              |
| Rampurva (lion)              | 4' 0"                 | 24"                | 36'                   | 18.0                 | 7' 5"                 | 3.7                    | 43' 5"                 | 21.7                 | ..                                  | 3' 0"                                    | 3' 0"                                    | 0.25                              |
| L. Nandangarh <sup>1</sup>   | 2' 11 $\frac{1}{2}$ " | 17 $\frac{1}{2}$ " | 32' 9 $\frac{1}{2}$ " | 21.6                 | 6' 9"                 | 4.6                    | 39' 6 $\frac{1}{2}$ "  | 26.3                 | ..                                  | 2' 2 $\frac{1}{2}$ "                     | 2' 2 $\frac{1}{2}$ "                     | 0.26                              |
| Delhi Topra                  | 3' 2 $\frac{1}{2}$ "  | 19 $\frac{1}{2}$ " | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 35'                                 | ..                                       | 2' 1 $\frac{1}{10}$ "                    | ..                                |
| Kosam <sup>2</sup>           | ..                    | ..                 | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 39' 6"                              | ..                                       | 2' 5 $\frac{1}{2}$ "                     | ..                                |
| Rampurva (bull) <sup>3</sup> | ..                    | ..                 | ..                    | ..                   | 6' 9"                 | ..                     | ..                     | ..                   | ..                                  | ..                                       | 2' 5 $\frac{1}{2}$ "                     | ..                                |
| Delhi-Mirath                 | 2' 11 $\frac{1}{2}$ " | 17 $\frac{1}{2}$ " | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 32' 9"                              | ..                                       | ..                                       | ..                                |
| Gutiva                       | ..                    | ..                 | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 10' 0"                              | ..                                       | ..                                       | ..                                |
| L. Araraj                    | ..                    | ..                 | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 36' 6"                              | 3' 5 $\frac{1}{2}$ "                     | 3' 1 $\frac{1}{2}$ "                     | ..                                |
| Nigalisagar <sup>4</sup>     | ..                    | ..                 | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 29' 8"                              | 2' 0"                                    | 2' 0"                                    | ..                                |
| Besah                        | ..                    | ..                 | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 35' 10"                             | 4' 2"                                    | 3' 3"                                    | ..                                |
| Rumindei                     | ..                    | ..                 | ..                    | ..                   | 9' 5"                 | ..                     | ..                     | ..                   | 21' 0"                              | ..                                       | ..                                       | ..                                |
| Palladpur                    | ..                    | ..                 | ..                    | ..                   | ..                    | ..                     | ..                     | ..                   | 27' 0"                              | 3' 0"                                    | ..                                       | ..                                |
| Sankissa                     | ..                    | ..                 | ..                    | ..                   | 8' 11 $\frac{1}{2}$ " | ..                     | ..                     | ..                   | ..                                  | ..                                       | ..                                       | ..                                |

<sup>1</sup> I am not sure that this gives the entire height of the shaft. If I am not mistaken, this pillar has not been excavated to the foundations.

<sup>2</sup> I am indebted to Mr. M. S. Vats, Offg. Supdt. Arch. Survey, Hindu and Buddhist monuments, for information regarding this pillar. Unfortunately I was not informed about the lower diameter of the shaft.

<sup>3</sup> As I could not make out the measurements of the pillar from the Excavation Report of Rai Bahadur Sahni in *A.S.I.A.R.*, 1907-08, pp. 185-188, I applied to the Supdt. Central Circle for information. In reply my attention was very kindly drawn by Mr. M. N. Kuraishi, Offg. Supdt. to the Exc. Report in *A.S.I.A.R.*, 1907-08. Unfortunately no additional information was supplied.

<sup>4</sup> Only 2 pieces of the shaft 14' 9 $\frac{1}{2}$ " and 10' have been found by Mukherjee and a portion between these seemed to be missing. 29' 8" is the length calculated from the two.

## CONCLUSION.

The analysis of the Mauryan Dhvaja pillars has been made with a view to find out whether there is a unity of proportion determining the mutual relations of their parts. We have found that the application of the principle at any rate was not as rigorously made as in the Greek orders. In this respect they resemble the Achæmenian pillars. 'The total height of the great columns', according to Perrot and Chipiez, 'in the principal palace at Persepolis is 12 diameters, of which  $9\frac{1}{2}$  belong to the shaft, and  $1\frac{1}{2}$  to  $5\frac{1}{2}$  to the capital as it is simple or complicated. Elsewhere the entire height of the order is somewhat less than 12 diameters; whilst in one of the porches it falls to  $10\frac{1}{2}$  diameters, bringing it very near to that of the tombs at Nakshi Rustom computed at  $10\frac{1}{2}$ '.<sup>1</sup>

The tables 1 and 3 show that the Mauryan columns are taller in proportions, the five shafts alone of table 1 being roughly in the ratio of 11 : 1 on an average. This agrees with the unfluted column of the so-called palace of Cyrus, which has lost its capital and also measures 11 diameters without it. According to Perrot and Chipiez 'some of the columns at Istakhr have very similar proportions'. If a like agreement is found to exist between the ratios of these polvar pillars and the Mauryan *Dhvaja* pillars when their detailed measurements are available, our conclusions regarding the influences of indigenous tradition on Mauryan Art will need to be revised.

From the purely morphological standpoint, the chief variation between the columns appear to consist in the decorative elements applied above and below the companioniform. The square abacus of the Besarh capital is no less important. In comparing both the measurements and the forms, we should do well to remember that our data as regards both is scanty and that only 15 columns out of an approximate total of 30<sup>2</sup> have been so far traced. The variability as regards proportions and morphology is explained best by the hypothesis that Mauryan architecture did not start with a rigid canon. The heterogenous elements which can be recognized in the Dhvaja pillars are in the first instance assembled together and welded into an organic type by the creative genius of the Mauryan architect, a type destined to persist, it is true with modifications, for nearly a millenium. The design may be regarded as roughly complete in the Besarh column. Already at Besarh the main elements of that design have been brought together by a judicious selection

<sup>1</sup> Perrot, G. and Chipiez, C., *History of Art in Persia*, London, 1892, p. 59.

<sup>2</sup> Smith, Vincent A., *A History of Fine Art in India and Ceylon*. Second Edition, Revised by K. De B. Codrington, Oxford, 1930, p. 17.

and adaptation of motifs. Yet from Besarh to Sarnath we find it maturing, ripening in feeling for line, in sense of volume and in perception of monumental effect. It is in obedience to the sense of rhythm, that the square abacus of the Besarh capital gives place to the circular form, that the campaniform capital gains in elegance of outline and the crowning animals with the abaci seem to grow out of the bell.

## An Experimental Study of the Asphyxiation of some Air-breathing Fishes of Bengal.

By EKENDRANATH GHOSH.

In view of the marked difference of opinion regarding the asphyxiation of some common fish of Bengal, the author conducted a few simple experiments to clear up some of the disputed points. The results of the previous observations on this subject are briefly summarized in this paper.

*History.* The attention of the scientific men was first directed to this subject by the observations of the fishermen who were acquainted with the fact that some fish come to the surface to breathe air.

In 1865, Boake (1) experimented with a few common fishes in Ceylon. He used three forms of glass vessels: (a) glass receivers (no measurements are given) containing the fish and submerged in water inside a larger vessel; (b) a bell-glass of a hanging lamp (no measurements are given), with a diaphragm of a circular piece of tin, perforated with small holes; and (c) a glass jar, 36" x 16" x 12", with a diaphragm of mosquito netting, fixed six inches below the surface of water.

In 1868, Day (4) repeated the experiments with some Indian fishes. He used a glass globe, twelve inches high and with a maximum diameter of ten inches. A net diaphragm was stretched across the maximum diameter one inch below the surface of water. The temperature of the water varied from 76°F. to 78°F. He incorporated his conclusions in his account of the *Fishes of India* (6) and in the volumes on fishes in the *Fauna of British India* series. (7) Reference may also be made here to two other papers of Day, which, however, have no direct bearing on the present subject. In 1873, (5) he classified fishes according to their modes of respiration as follows: (i) water-breathing, (ii) more essentially air-breathing and water-breathing to a limited extent, and (iii) air-breathing and breathing through skin without any special air-breathing organ. In 1877, (6) in discussing the nature of respiration in the amphibious fishes of Asia, he concluded that these fishes normally respire atmospheric air direct, and possess respiratory organs which are quite distinct from the gills, and function as lungs. These accessory respiratory organs are directly connected with circulation and are not dependent on branchial circulation for the aeration of the blood. He further remarked that they are not homologous with air-bladder. In support of his conclusions he described several simple experiments.

In 1874, Dobson (8) conducted similar experiments on Indian fishes. He used a large jar (no dimensions are given). The diaphragm used by him consisted of a perforated metal plate fixed one inch below the surface of water. The temperature of water varied from 87°F. to 91°F.

Das (2) used a glass jar, two feet high and one foot in diameter. A diaphragm of gauze was made to hang one inch below the surface of water. The temperature of water varied from 82.5° to 93.5°F. Das (3) performed further experiments on *Pseudapocryptes lanceolatus* (Bloch and Schneider) and remarked that the period of drowning is much greater in this species than in the other air-breathing fishes of India. [He<sup>1</sup> has recently re-published these results with some additional information in the *Proceedings of the Royal Society of London*. S.L.H.]

*Technique.* In view of the objection that the jars used in previous experiments were comparatively small with an insufficient amount of water, as a result of which fishes which take oxygen from air dissolved in water, would die of asphyxiation as the dissolved oxygen is used up and the water becomes charged with carbon dioxide, a tank, nearly four feet and a half in length, two feet and a half in width, and one foot and two and a half inches high, was used in the present experiments. The fish was confined in a cage, or in a jar with the mouth closed by a gauze. The animal lay at least one inch, sometimes several inches, below the surface of water. The temperature of water was 81° to 82°F. The water used contained 0.72 parts per 100,000 of oxygen and 8.675 parts per 100,000 of carbon dioxide (determined by the Chemical Examiner to the Government of Bengal).

*Results.* The results of the experiments of previous observers and those of the present experiments are tabulated below. The period of 'drowning' is noted in each case. The fishes was prevented access to atmospheric air by using the devices noted above.

#### I. SYMBRANCHII.

##### 1. *Amphipnous cuchia* (H.B.).

According to Das (2) the animal survived for one hour and forty-two minutes.

#### II. OPISTHOMI.

##### 1. *Mastacembelus pancalus* (H.B.).

According to Dobson (8) the animal survived for five hours and fifteen minutes.

<sup>1</sup> Das, "The Habits and Structure of *Pseudapocryptes lanceolatus*, a fish in the First Stages of Structural Adaptation to Aerial Respiration." *Proc. Roy. Soc. London* (B) CXV, pp 422-430, Pls. xix, xx (1934).

## 2. *Rhynchobdella aculeata* (Bloch).

According to Dobson, (8) the animal lived for five hours and thirty-five minutes.

Day (*Fishes of India*, p. 339; *Fauna of British India*, Fishes, Vol. II, p. 332) notes that the fish *Rhynchobdella aculeata* is 'drowned in water if unable to reach the surface, as it apparently requires to respire air directly'.

In all my experiments, repeated several times, none of these two species or even *Mastacembelus armatus* (Lacépède) died as a result of being confined in the cage, and all continued to live for a week.

## III. APODES.

### 1. *Anguilla anguilla* (H.B.).

In my experiments they died between twelve hours and thirty minutes, and seventeen hours and thirty minutes.

## IV. EVENTOGNATHI.

### 1. *Lepidocephalichthys guntea* (H.B.).

According to Dobson (8) it survived for twenty-four hours.

### 2. *Lepidocephalichthys thermalis* (Cuv. and Val.).

According to Day (4) it lived for eight hours.

## V. NEMATOGNATHI.

### 1. *Clarius batrachus* (Linn.).

According to Boake (1) it lived for about six hours and forty-five minutes.

According to Das (2) it lived for one hour fifty minutes. In my experiment a vigorous animal lived for thirteen hours.

### 2. *Clarius teysmanni* Bleeker (*Hoonga* of Ceylonese).

According to Boake (1) it survived in a glass receiver for one hour thirty minutes to two hours. In a large jar (36" × 16" × 12") it lived for four to six hours.

### 3. *Saccobranhus fossilis* (Bloch).

According to Dobson (8) it survived for two to four hours.

According to Das (2) it lived for one hour forty-three minutes.

In my experiment, one lived for five days inside a cage.

4. *Plotosus canius* H.B.

According to Dobson (8) it lived one hour.

5. *Mystus tengara* (H.B.).

Day: Not affected.

Dobson: Eight hours and twenty minutes.

## VI. LABYRINTHICI.

1. *Anabas testudineus* (Bloch).

According to Boake it lived one hour and thirty minutes to two hours (in a glass receiver), and one hour to one hour and fifteen minutes (in a jar with above measurements).

According to Dobson it lived for twelve minutes.

According to Das it lived for sixteen minutes.

In my experiments, two animals died in twenty-two and twenty-nine minutes respectively. After eighteen minutes both of them lay flat and motionless on the bottom of the cage.

2. *Trichogaster chuna* (H.B.).

According to Das (2) one lived for four hours and twenty-three minutes.

3. *Trigogaster fasciatus* (Bl. and Schn.).

According to Dobson (8) one died after three hours and forty minutes and another after four hours and fifteen minutes.

4. *Trichogaster lalius* (H.B.).

In my experiment, one lived for one hour and nine minutes.

5. *Ophicephalus striatus* Bloch. (*Loolla* of Ceylonese.)

According to Boake (1) one lived for one hour to one hour and thirty minutes (in a glass receiver and bell jar); another (in a jar with measurements given above) lived for about eighteen hours and fifty-five minutes.

According to Dobson (8) the animals lived for one hour and five minutes to one hour and thirty-five minutes.

According to Das (2) one lived half an hour.

In my experiment, one young specimen died in thirty five minutes; a full-sized specimen died in fifty minutes; two other animals lived for two hours and seventeen minutes.

6. *Ophicephalus punctatus* Bloch. (*Maddacariya* of Ceylonese.)

In Boake's (1) experiments the animals died within six hours and forty-five minutes.

According to Day (4) they survived for twenty-two minutes to one hour and twenty-eight minutes.

According to Dobson (8) they lived for one hour and thirty-eight minutes to four hours and forty minutes.

According to Das (2) one lived for one hour and forty minutes.

In my experiment, two specimens lived at least for six hours. One specimen for one day and another specimen for sixteen hours.

7. *Ophicephalus gachua* H.B. (*Connias* of Ceylonese.)

According to Boake (1) one lived for one hour, and another (in measured jar) survived for more than eighteen hours.

In my experiment, one lived for five hours and twenty minutes.

## VII. THORACOSTEI.

*Polyacanthus signatus* Gunther. (*Pulutta* in Ceylonese.)

According to Boake (1) one survived for fifteen minutes.

*Conclusion.*—Taking into consideration the work of previous authors, and as a result of the present series of experiments, it is clear that most of the fishes survived for much longer periods in my experiments, while *Saccobranchus fossilis*, *Mastacembelus pancalus*, *M. armatus* and *Rhynchobdella aculeata* could not be 'drowned' in spite of keeping them under water for prolonged periods. It thus appears probable that the fish in the earlier experiments were asphyxiated as a result of insufficiency of normal water rather than for want of free air for aerial respiration.

*Anabas*, which died in the shortest period, appears to have altogether lost the aquatic mode of respiration. Others, living for a much longer period, have evidently retained to some extent the capacity for aquatic respiration, while developing the more efficient aerial mode. The fishes which survived in my experiment are those which have fully retained the aquatic mode of respiration, although they have become adapted for aerial respiration as well by the development of accessory respiratory organs which enable them to remain alive out of water for considerable periods.

In conclusion, I convey my thanks to Dr. S. L. Hora and Dr. B. Prashad for rendering me help in getting up the paper.



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## India and the Persian Empire.

By HARIT KRISHNA DEB.

### I. Termination of Tyranny.

The recent discovery, in the town of Hamadan, of an inscription of Darius has thrown new light on the history of the Achæmenian conquests in India. Although literary tradition ascribed to Cyrus a military expedition to these quarters, scholars did not accept it as genuine. Professor Herzfeld<sup>1</sup> has now shown from the Hamadan record that Gandhāra and the Punjab were already part of the Persian empire in the middle of the 6th century B.C., and that the acquisition of Sind was the work of Darius. This eastward extension of Achæmenian sway may be expected naturally to have left its mark in many spheres of Indian activity. It is the object of this paper to investigate how many of these marks are discernible now in the political sphere.

When Darius despatched the Greek captain Skylax to explore the course of the Indus, obviously by way of a reconnaissance preliminary to an invasion in force, Northern India was divided into a number of States, large and small. Two of these, Magadha and Avantī, deserve special mention. Magadha was being ruled by Darśaka, son of Ajātaśatru, while at Avantī, Pālaka, son of Pradyota, held sway. To arrive at a tentative chronology, we may accept the traditional dates of the Buddha and Mahāvīra, archæological evidence not having succeeded yet in superseding traditional chronology. The Buddhist date for the Buddha's death is 544 B.C. According to the Ceylon chronicles, this event happened in the 8th regnal

<sup>1</sup> *Mem. Arch. Surv. Ind.*, No. 34. The learned author of the monograph rightly holds that OP. *batagush* corresponds to the Punjab, being located between Gandhāra and Sindhu or Sind (OP. *Hindu*). He shows (p. 3) that *batā* represents Skt. *śata*. Regarding the latter element *-gush*, I would rather connect it with root *-gur* than with the substantive *-go*. *Sata-guh*, the resultant Skt. form, would then equate with *Sata-dru*, roots *-gur* and *-dru* both signifying 'to go'. Thus, *batagush* would denote the land of the Sutlej in the same way as *Hindu* denotes the land of the Indus. In the 7th century A.D., Yuan Chwang found the country, bordering on the river Sutlej, named She-to-t'u-Lu (=Satadu); see Beal, *Records of the Western World*, i, 178. Arrian (*Exp. Alex.* V, 6, 2-11), citing Eratosthenes and Megasthenes, refers to the old-time custom of naming a country after its river. The Doabs or intra-fluvial tracts of the Punjab are still designated after the rivers enclosing them. The custom seems to have been specially favoured by the Iranians; see my article "Mede and Madra" in *J.P.A.S.B.*, 1925, p. 205.

year of Ajātaśatru.<sup>1</sup> Ajātaśatru therefore came to the throne about 551 B.C. But the Ceylon chronicles, however reliable they may be for the date of the Buddha, are not to be trusted, without reserve, for either the reign-periods or the succession of reigns of the Magadha monarchs in which they are only secondarily interested : on these points, the Purāṇas, compiled with Magadha as their historical background, claim preference and command greater confidence. Ajātaśatru, according to the Purāṇas,<sup>2</sup> was succeeded by Darśaka, their reign-periods being 24 and 27 years according to the Matsya, and 25 and 25 years according to the Vāyu. Darśaka's reign must therefore be comprised between 527 B.C. and 501 B.C. Similarly, Mahāvīra's death is placed by the Jain chronologists in 528 B.C., the event being made synchronous with the coronation of Pālaka. As Pālaka, according to the Matsya Purāṇa, reigned for 28 years, while the Vāyu and Brahmandā give the figure 24, his rule may be deemed to have begun in 528 B.C. and ended in 504 or 500 B.C.

The Ceylonese Mahāvamsa states that Darśaka (= Nāga-Dāsaka) was deposed by his city-people on the plea that he belonged to a parricidal race. The fact that he had been allowed to rule long enough shows that there was, at bottom, a graver reason for this popular rising than a mere recognition of his having been a parricide by hereditary instinct. What this reason was we are left only to guess. Northern Buddhist tradition confirms the story of Darśaka's dynasty having ended with him. Yuan Chwang records, in his account of Magadha, that a *saṅghārāma* of Ti-lo-shi-kia still existed and that it had been built by the last descendant of Bimbisāra. Ti-lo-shi-kia was at first rightly restored to Skt. *Darśaka* (Darśika) by Beal<sup>3</sup> who afterwards thought that *Tiladaka* would be a better restoration, as I-tsing gives an alternative reading *Ti-lo-ch'a*. We have no right however to 'correct' Yuan Chwang in the light of I-tsing.

The termination of Pālaka's reign is described in the political underplot forming part of the *Mṛcchhakatikā*, an early Sanskrit drama ascribing itself to a royal author.<sup>4</sup> Although it would be uncritical to accept as historical all the details of the occurrence as portrayed in this play, we should not be considered credulous if we believe in the reality of the tradition that Pālaka met his end violently at the hands of conspirators who had popular support. Pālaka's father was an usurper. He was

<sup>1</sup> This agrees with the circumstance that Pukkusāti, king of Gandhāra, sent an embassy to Bimbisāra, father of Ajātaśatru, which could only have been before Cyrus conquered Gandhāra.

<sup>2</sup> For the Puranic evidence, I have relied generally on Pargiter's *Dynasties of the Kali Age* in respect of readings. See also p. 349, n. *infra*.

<sup>3</sup> *Buddhist Records of the Western World* (Trubner's Oriental series), n. 102 n.

<sup>4</sup> Cf. p. 345, n. 2, *infra*.

also of turbulent disposition, being referred to in Buddhist accounts as Chaṇḍa-Pajjota. Writers on politics (Arthaśāstra) also knew him to have been a bad man: he is reputed to have planned despoiling his son's teacher Piśuna who saved himself by a hint received from Pālaka.<sup>1</sup> The Harshacharita (Sec. VI) of Bāṇa (7th century) likewise alludes to Kumārasena, another son of Pradyota, having been killed because he was madly in favour of selling human flesh. There is thus nothing improbable in the story of Pālaka's assassination to which credence was given by King Sūdraka, the author of the Mṛchchhakatikā.

These two incidents—the deposition of Darśaka and the assassination of Pālaka—strike one as rather extraordinary. Their synchronism suggests that revolution was in the air. People no longer believed in the divinity that doth hedge a king. Revolutionary France furnishes some sort of a parallel: Frenchmen, when they guillotined Louis XVI, had ceased to regard kingship as divine. The Indian revolution, showing forth changed ideals, appears to me to have been largely influenced by contemporary Persia. The Achæmenian king claimed to rule 'by the grace of Ahura Mazda'. We find a corresponding claim in Aśoka's description of himself as 'beloved of the gods', *devānāmpriya*. That Aśoka was not the first to adopt this epithet is proved by a comparison of the several versions of his Rock Edict VIII. In the Gīrnār, Dhauli, and Jaugada versions we read: 'In times gone by, kings (*rājānah*) used to go forth on so-called tours of pleasure'; while the versions at Kalsi, Shahbazgarhi, and Mansehra have: 'In times gone by, those beloved of the gods (*devānāmpriyāh*) used to go forth....' Clearly, therefore, the epithet *devānāmpriya* had begun to be applied to kings in India considerably prior to Aśoka. Nevertheless, we must conclude that its use does not mount back very much behind Aśoka's period; for, in that case, we would have found Aśoka employing a somewhat different mode of expression: instead of 'in times gone by' we would have found 'in times gone by—many centuries (have gone by)' as we find, for instance, at the commencement of Rock Edict IV. Moreover, we do not come across a similar use of the epithet anywhere in literature pertaining to the period of the Buddha or to an earlier epoch.<sup>2</sup>

We are thus justified in thinking that, about the time of deposition of Darśaka and assassination of Pālaka (c. 500 B.C.), the theory of kingship underwent a change. Indian monarchs, having

<sup>1</sup> MM. Gaṇapati Śāstri on Kauṭīliya Arthaśāstra, Bk. V, Ch. 5.

<sup>2</sup> The title is applied to Ajātaśatru (Kūṇiya) in the Uvāi Sūtra; see *J.A.*, X, 108. But the Sūtra is a late authority, although it must have been composed before the title went out of use. If we choose to rely on its evidence, the title must be supposed to have been introduced into India before Darius, say, c. 540 B.C.

lost the 'right to rule divine', began to style themselves 'beloved of the gods', a style modelled on contemporary Achæmenian example which had, through the recent conquests of Darius in India, forced itself on Indian attention.

The Kautiliya Arthaśāstra, of which the nucleus certainly goes back to a period before Aśoka, furnishes an insight into early Mauryan mentality on the same point. In chapter 13 of this treatise, we find details of processes to be adopted by the king for purposes of royalist propaganda within his own State. Two spies are to act in concert, visiting places of public resort. One of them condemns the king, saying: 'We are told that this king has all virtues: but we can perceive no virtue in a man who oppresses citizens and provincials alike with fines and taxes.' The remark naturally induces others of the assembly to express their own opinions; and, to this spy as well as to those who approve of the view put forward by him, the second spy says: "People overwhelmed with anarchy (*lit.* 'the logic of stronger fish swallowing up weaker ones') made Manu Vaivasvata king and further fixed his share as being one-sixth of the corn and one-tenth of the merchandise in gold. Maintained by that, kings look to the welfare of subjects.....

Therefore, even those who dwell in forests offer to the king one-sixth part of their corn-gleanings, saying to themselves: 'This is the share of him who protects us'.<sup>1</sup> He (the king) stands in the place of Indra and Yama; and through kings are perceived their pleasure and displeasure. Those who despise them are liable also to divine punishment. Hence kings are not to be despised. Thus are the lowly (*kshudrakāḥ*) to be warned." The rest of the chapter is devoted to methods of propaganda among the higher classes.

It will be seen that, amongst the lower strata of society, appeal to the mythological theory of the origin of kingship was still effective; but the threat of divine punishment is made in rather guarded language. The king is stated to be not a god himself but a *vicegerent* of two gods, Indra and Yama. Belief in the king's divinity thus persisted among the lower orders, but only in an attenuated form, closely approaching the Achæmenian belief that the king ruled by the grace of Ahura Mazda. Consistently with this, there is no pretence anywhere in the Kautiliya that the king was anything but human. In subsequent writings belonging to a period when faith in the king's divinity had returned, we find the king deified once again (*e.g.*, Mānava-dharmaśāstra, Kāmandakiya-nīṭisāra, etc.).

As already indicated, the fall of Darśaka as well as of

<sup>1</sup> Cf. the passage quoted from the Mānava Arthaśāstra by Somadeva in his *Nīṭvākyaṃṛta* (Ch. VII): *uñchaṣaḍbhāgapradānena vanasthā api tapasvino rājānān sambhāvayanti. tasyaiva tadbhūyāt yas tām gopāyatīti.*

Pālaka was brought about by a rising of the people, specially of the city-people: they lost their thrones because of their unpopularity. Was the spirit of revolt fostered or prompted by Persia? For a definite answer to this question we possess no positive evidence at present. But, if we look closely into Persian policy of the period, we can see that it relied largely on support from tyrants. When Darius was busy in his Scythian expedition, he left several Greek tyrants in charge of the Danube bridge. It was suggested by one of them that they should destroy the bridge and thereby secure the destruction of the entire Persian army under the command of Darius. Most of the other tyrants were at first inclined to accept the suggestion, thinking that they could by that means recover their own independence. But there was one dissentient voice, that of Histaeus, a tyrant of Miletus, who warned them that the continuance of their own rule really depended on Persian imperialist support; if the Persian empire disappeared, the peoples of the Grecian city-states would rise in revolt against their tyrants and expel them. This little incident shows that the tyrants were the natural allies of imperialist Persia. If a State was ruled by a tyrant, and the tyrant somehow forced or cajoled into recognizing the supremacy of Persia, the State effectually became a part of the Persian empire, although, normally, its internal administration would not be interfered with. It was mainly through these tyrants that the Persian empire maintained its ascendancy over many Grecian city-states.

But the policy did not succeed in Athens. In the year 510 B.C., the Athenians rose in revolt against their tyrant Hippias and expelled him. It is recorded of Hippias that, with a view to secure shelter and support in case his policy of frightfulness incited his people to expel him, he had sought to connect himself with Persia by a matrimonial alliance; and his action subsequent to his expulsion shows him as a dependent on Darius. Athens adopted now a democratic government which was maintained for a long time despite attempts to re-establish tyranny. The Greeks were evidently convinced that tyranny was no longer to be tolerated: it was only through democracy that independence could be achieved or maintained. We trace the same psychology behind the declaration of democracy by the Ionic cities, preliminary to their revolt from Persia (490 B.C.).

Within a year of the expulsion of Hippias from Athens, we find the Romans in revolt against their own tyrant, Tarquin. It is hard to believe that the synchronism is accidental. Probably, the real reason for the Roman revolt was recognition of the Persian menace. That Darius had designs against Rome seems to follow from the fact that he explored the coasts of Sicily and Italy: this exploration has a family likeness to the exploration carried out by him farther east, in the Indus region. Expanding Persia was by this time probably in possession of

Carthage, as it is included, under the name Karka,<sup>1</sup> in the Persian empire as defined in the Naksh-i-rustum inscription of Darius. From Carthage it would not be difficult to attack Rome. Polybius records that a treaty was signed between Carthage and Rome only one year after the expulsion of Tarquin ; and the new constitution adopted by Rome bears a striking resemblance to the Carthaginian constitution inasmuch as, in both States, two rulers were at the apex of the constitution. We thus perceive that, although actually occasioned by an exasperating outrage committed on a Roman matron by a son of Tarquin, the rising of the people at Rome was promoted by deep political motives. The treaty noticed by Polybius (*Hist.*, iii, 22-23) assigned Italy to the Romans and reserved the African waters for Carthage, Sicily being kept (according to Prof. Babelon)<sup>2</sup> as a dangerous neutral zone. These terms signify a prior dispute between Rome and Carthage ; and we know from other sources that Grecian settlements in Sicily, Corsica, and Sardinia were not at peace with their neighbours. In fact, Corsica and Sardinia were hospitable asylums for Greeks hostile to Persia.

At a slightly later period, we find Persia under Xerxes acting in concert with Carthage and sharing simultaneous defeat on land and sea, the one inflicted by the Greeks at Salamis, the other inflicted by the Greeks of Sicily. The policy revealed here, of Persia and Carthage joining hands for the subjugation of the entire Hellenic world,<sup>3</sup> was in all probability initiated not by Xerxes but by Darius. Xerxes, in fact, is reputed to have had only half a heart for the Grecian expedition which had been planned in advance by his father, Darius, who died before he could accomplish it.

In the light of these considerations, the expulsion of Tarquin from Rome appears to have been caused by the same stress of circumstances as had actuated Athens to get rid of Hippias : it was the only way to stem the tide of Persian expansion. The story of Tarquin's expulsion has been disbelieved in certain quarters, mainly because it resembles and synchronises with the expulsion of Hippias. It seems to me, however, that the affinity of the two accounts, in substance and in time, merely proves actual affinity of events between the Greek and the Roman worlds. Instead of imagining that Roman historians invented the tale of Tarquin in imitation of the Greek story of Hippias, we may

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<sup>1</sup> The identification is due to Andreas ; see Ed. Meyer in *Encycl. Britt.* (11th ed.) art. 'Persia', whence I have derived much other information utilized in this paper.

<sup>2</sup> *Encyc. Britt.* (11th ed.), art. 'Carthage'.

<sup>3</sup> Hackforth (*Camb. Anc. Hist.*, IV, 378) disputes the reality of the policy on grounds already contested by Grote (*Hist. of Greece*, ed. 1849, V, 294). Mommsen and Meyer are among the authorities who believe in a Perso-Carthaginian alliance against Hellas, in the days of Xerxes.

well believe that, conditions in Rome being similar to those at Athens, the Romans did what the Athenians had done to foil the aggressive aim of Persia.

From this new perspective, the popular risings in India acquire special significance. What we find happening at Athens and in Rome, we also find enacted in Avanti and in Magadha, almost at the same time. Is it hazardous to conjecture that the expansive policy of Darius, who used tyrants as tools, is responsible for this fourfold disappearance of tyranny, on the east and on the west of his great empire? (Can we really imagine that these extraordinary events, occurring synchronously, are entirely unconnected?)

To those who have studied the contemporary philosophies of India and Greece, a close connexion between the two peoples in the world of thought has been made manifest; and one scholar has actually suggested that the Persian Empire formed the medium for an exchange.<sup>1</sup> Evidence of Indo-Greek contact is also perceptible in the prevalence, in a marked measure, of the *svastika*-cult in the Grecian world from the 7th to the 5th century B.C.<sup>2</sup> If we could separate the earlier account from the later additions in the *Periplus* going under the name of Skylax, we might perhaps obtain direct evidence that the same Greek captain who navigated the Indus navigated the western waters with an ease bespeaking brisk communication between India and the Mediterranean world. The voyage of Skylax down the Indus possibly formed the basis of the reference, by Hecataeus of Miletus, to the same river and to the Gandarii or Gandharians (c. 500 B.C.) But, if Gandhāra—and even the Punjab—had already been incorporated in the Persian empire during the reign of Cyrus, Greece and India must have known about each other earlier still. Land-routes within the Achæmenian empire were particularly well-organized, so that a journey from Sardis to Susa took 3 months (Herod. V, 50–54). Ionians must have been long and sufficiently known to the people of Gandhāra before Pāṇini since the great grammarian, who was himself a native of Gandhara, gives a special rule for the formation of the word *Yavanāni* to denote (as Kātyāyana testifies) the Yavana or Ionian script; and there is good reason to believe that Pāṇini wrote about 500 B.C.<sup>3</sup> A sea-route connecting India with Babylon is attested by the Bāveru Jātaka, the form *Bāveru* for Babylon showing passage through an Iranian medium.

<sup>1</sup> Richard Garbe, *Philosophy of Ancient India*, (Chicago, 1899), p. 38.

<sup>2</sup> Deb, *J.P.A.S.B.*, 1921, pp. 231 ff. (with Plates).

<sup>3</sup> The word *Yavana* primarily meant Ionian; and we have no grounds to hold that the term had acquired, in Pāṇini's time, a more general signification. Ionic script and literature dominated Greece. For the date of Pāṇini, see my forthcoming paper "Pāṇini and Puṇika", where connexion is traced with the family of Pradyota, son of Puṇika.



Even in the 7th century B.C., when the Medes were yet under republican rule, an Indian sage could visit Madra, i.e., Median territory in order to learn sacrificial rites<sup>1</sup>. In Magadha itself, the ruling dynasty was of Susian origin since about 700 B.C.<sup>2</sup>; and Bimbisāra, the contemporary of Buddha, married a Madra princess.

Thus, it is quite possible that pro-Persian intrigue had found congenial soil in Magadha before the reign of Darśaka, the third and last descendant of Bimbisāra. News of the overthrow of tyranny in Athens could also be easily communicated through Ionian visitors to Taxila, the capital of Gandhāra, where men from all parts of India flocked for education and culture. There was ample scope, therefore, for Persian intrigue with Indian despots as well as for Ionian counter-propaganda amongst the Indian peoples shortly before 500 B.C. when we find popular revolts culminating in the double overthrow of tyranny in Magadha and in Avantī.<sup>3</sup>

## II. *Coalition under Udayana.*

The double overthrow of tyranny, in Magadha and in Avantī, ushered in a new epoch. It initiated an era of political union. The two States coalesced under the military leadership of Udayana, king of the intermediate country known as Vatsa, possibly with a view to meet the Persian menace. Romance has preserved recollections of this great event. And collateral evidence is not wanting.<sup>4</sup>

We have seen that Buddha and Mahāvīra were contemporaries of each other, and that when they flourished, Pradyota was reigning in Avantī, and Bimbisāra was reigning in Magadha. Buddha, according to Buddhist tradition, died early in the reign of Ajātaśatru, the successor of Bimbisāra. Mahāvīra, according to Jain tradition, died early in the reign of Pālaka, the successor of Pradyota. Udayana Vatsa-rāja was a younger contemporary of both Pradyota and Ajātaśatru, since he married Vāsavadattā, the daughter of Pradyota of Avantī, and had a second queen in Padmāvatī, the sister of Darśaka who succeeded Ajātaśatru in Magadha. The *Bṛhatkathā*, as preserved to us in the Sanskrit redactions, the *Bṛhatkathā-mañjarī* and the *Kathāsaritsāgara*,

<sup>1</sup> Deb, *J.P.A.S.B.*, 1925, pp. 205-10.

<sup>2</sup> Deb, *J.A.O.S.*, Vol. 42, pp. 194 ff., and Vol. 45, pp. 72-5.

<sup>3</sup> The philosophy underlying the anti-tyrant movement finds forceful expression in certain chapters of the *Mahābhārata* (e.g., *Anuśās.* 61, *Sānti.* 92).

<sup>4</sup> Much of the ground covered in this section is identical with that in the present writer's booklet *Udayana Vatsarāja* (Calcutta, 1919), which was printed in a limited number and may not be accessible to many scholars now. The arguments are here revised, re-arranged, and supplemented. My main thesis, that Udayana is the link connecting Magadha with Avantī, was accepted by the late Dr. Vincent A. Smith.

contains a romantic description, very similar to the story as depicted by Bhāsa in his *Pratijñāyugandharāyaṇa* and *Swapna-vāsavadattā*, of how Udayana came to marry these two princesses. It further declares that Udayana received, as an indirect consequence of these politico-matrimonial alliances, the homage of both Avantī and Magadha. The Kathāsaritsāgara declares, in fact, that Udayana undertook a *digvijaya* and was very successful in his campaigns, being served by an excellent commander-in-chief and an excellent minister. But the narration of these conquests is so palpably modelled on Kālidāsa's description of Raghu's *digvijaya* that scholars would be justified in regarding it as more poetical than real. The Brhatkathā-mañjarī gives an earlier version of the story.<sup>1</sup> This version is independent of Kālidāsa, and seems to be based on genuine tradition. It declares that Udayana succeeded in conquering the King of Benares (who belonged to the Brahmadatta dynasty) and became a *chakravartti* monarch being 'worshipped' (*pūjita*) by the kings of Avantī and of Magadha, and obeyed by his vassals. This is a modest scheme of conquest, capable of realization by a king who had married into the two royal Houses of Magadha and Avantī, both now overthrown by popular revolt. Such a *digvijaya* must be distinguished from the conventional *digvijaya* of poets wherein the hero is never permitted to stop short after conquering only three kingdoms in his immediate vicinity.

The tradition that Udayana was a warrior-king is also preserved in Tibetan literature, as Rockhill relates in his *Life of the Buddha* (page 74). The same tradition is mentioned in a copperplate inscription, dated in the year 625 of the Śaka era, in which King Vijayāditya Satyāśraya institutes a comparison between himself and Vatsa-rāja in having 'come safely through his obstacles and tranquilised the whole world by the support of his own arms'. The *Ratnāvalī*, ascribed to king Harsha (7th century A.D.), also contains clear indication, by way of prophecy, that the then current tradition regarded Udayana as having been a *sārvabhauma* monarch with a wide extent of territory (Act IV).<sup>2</sup>

<sup>1</sup> Prof. Sylvain Lévi gives good grounds for connecting the Brhatkathā with Ptolemy's Geography, in point of time (*Études asiatiques*, 25th anniv. of *L'école française d'extrême orient*). Cf. Deb, *I H.Q.*, Vol. VIII, pp. 474-5.

<sup>2</sup> The evidence is valuable as indicating that the records available to the royal author represented Udayana as a *sārvabhauma* monarch. It is at least as valuable as the evidence of Bāṇa, in his biography of Harsha, regarding various kings—Kāka-varṇa (son of Sisunāka), Pradyota, Pushyamitra, Chandragupta (II), etc.: the details inspire confidence. Harshavardhana, as an imperialist with a name clearly modelled on his predecessors Aśoka-varḍhana and Nandi-varḍhana, would naturally require to be satisfied about the real history of Udayana before representing him as a *sārvabhauma* emperor; contact with Ceylon also may be historical.

If there be any truth in these accounts, we may expect to get confirmation from other sources. The *Bṛhatkathā* account implies that Udayana, originally ruler of the small kingdom of which Kauśāmbī was the capital, ultimately became master of Avanti and Magadha. If that was really the case, we ought to find him mentioned as ruler of Magadha, as well as of Avanti, in the dynastic lists of the Purāṇas. In the Vishṇu-Purāṇa list of Magadha monarchs we do notice the name 'Udayana', as succeeding 'Darbhaka' who is undoubtedly the 'Darśaka' of the Vāyu Purāṇa. This 'Udayana' is called variously in different manuscripts of the Purāṇas; the Bhāgavata calls him 'Ajaya' or 'Ājaya'. His successor is generally called 'Nandivardhana', and the Bhāgavata, according to Mr. Pargiter, 'gives him the patronymic *Ājeya*', which indicates that Nandivardhana was the son of the monarch called 'Udayana' in the Vishṇu.

Similarly, in the Purāṇa list of Avanti Kings, we find Pālaka succeeded by 'Ajaka' and his son 'Nandivardhana'. Usually, it is true, the MSS. place a king 'Viśākha-yūpa' between 'Pālaka' and 'Ajaka'. But we must correct this order in the light of the *Mṛchchhakatikā* which places, as we have seen, 'Āryaka' (= 'Ajaka') just after 'Pālaka'. The spelling 'Nandivardhana' is assured by Mt., Bḍ., Vṣ., and Bh., as against Vā., which has 'Vartivardhana'. It is difficult to avoid thinking that the name 'Ajaka', given to the father of Nandivardhana of Avanti, can be equated with the name 'Ajaya' or 'Ājaya', given by the Bhāgavata to the father of Nandivardhana of Magadha; Prakritic influence accounting for the transformation of *ka* to *ya*. The twofold identity of names can hardly be the work of accident: the monarch called 'Udayana' in the Vishṇu list of Magadha kings was probably also lord of Avanti. 'Ajaka' would thus be an epithet of Udayana, much as 'Śreṇika' was of Bimbisāra, 'Kunika' of Ajātaśatru, 'Mahāsena' of Pradyota. It is worthy of remark that a Chinese commentator on Yuan Chwang applies to Udayana of Kauśāmbī the epithet *chu-ai*,<sup>1</sup> signifying the God of Love, Kāma, and 'Aja' also signifies Kāma. We shall presently see how this important link re-appears in Tibetan tradition (pp. 343-44 *infra*).

The history of the foundation of Pāṭaliputra, as recorded by different authorities, furnishes another line of evidence confirming our conclusion. Yuan Chwang states that 'in the first 100 years after the Nirvāṇa of Tathāgata there was a king called Asoka (O'-shu-kia) who was the great grandson of Bimbisārarāja: he changed his capital from Rājagṛha to Pāṭaliputra'. This 'Asoka' cannot be the Maurya Asoka, for

<sup>1</sup> Watters, Yuan Chwang, I. 368.

the latter did not flourish 'in the first 100 years after the Nirvāṇa', and was certainly not 'the great-grandson of Bimbisāra-rāja'. That the Aśoka contemplated here is not the 'Aśoka-rāja' to whom Yuan Chwang constantly refers is proved by the circumstance that in this instance only is he described as '*a king called Aśoka*' and as '*the great-grandson of Bimbisāra-rāja*',—ways of expression indicating that he is introduced here for the first time and consciously distinguished from the 'Aśoka-rāja' whom the pilgrim has mentioned many times already. On the other hand, he is easily identifiable with the monarch who is associated, in the Vāyu and Brahmāṇḍa Purāṇas, with the removal of the capital to Kusumapura (=Pāṭaliputra), and was, according to the Purāṇas, the *fourth* king from Bimbisāra,—the counterpart of Yuan Chwang's statement that 'Aśoka', who removed the capital from Rājagṛha to Pāṭaliputra, was the 'great-grandson' of (fourth in *descent*, instead of fourth in *order*, from) Bimbisāra. He is identical with the monarch called 'Udayana' in the Viṣṇu, and was the father and predecessor of Nandivardhana.

He must also be the same as Kālāsoka of the Burmese tradition, since the Burmese ascribed to Kālāsoka the removal of the capital of Pāṭaliputra. In the Mahāvamsa, too, Pupphapura (=Skt. *Pushpapura* or *Kusumapura*) is mentioned for the first time in connexion with Kālāsoka. In the Dipavamsa, also, Pāṭaliputra is alluded to for the first time in connexion with 'Asoka' who is distinguished from the Mauryan Aśoka and is alternatively called 'Kālāsoka' in this chronicle.<sup>1</sup> Besides, according to these Sinhalese authorities, this 'Asoka' or 'Kālāsoka' lived about a hundred years after the death of Buddha while the Maurya Aśoka is placed by these authorities more than two hundred years after the Nirvāṇa.

Tārānath also seems to give the Tibetan version of the same tradition when he says that 'Kāmāsoka' or 'Aśoka', son of Nemita, was given by his father the town of Pāṭaliputra 'as an appanage'. That the king styled Kāmāsoka in the Tibetan records was the same as the king styled Kālāsoka in the Sinhalese chronicles follows from the fact that the Second Buddhist Council is stated by Tārānath to have been held in the reign of Kāmāsoka, under the auspices of Nandin,<sup>2</sup> while the Sinhalese accounts

<sup>1</sup> *Dipavamsa* (ed. Oldenberg), V. 25. In another place (*ibid.*, V. 99) Kālāsoka is confounded with 'Sisunāga', showing that the authorities drawn upon for the history of Sisunāga were in conflict; so that we cannot safely rely in every detail on the dynastic succession in Magadha as given in the Sinhalese Chronicle. The author of the Mahāvamsa also was primarily interested in Buddhism, not in the dynastic succession in Magadha. Cf. p. 349, n. *infra*.

<sup>2</sup> Nandi (-Vardhana) seems to have been made a king in his father's lifetime. Thereby is explained the long reign-period assigned to him in the Purāṇas under the Magadhan enumeration. I have shown that

represent it as having been convened in the reign of Kālāsoka. The name 'Kāmāsoka' is directly comparable to the appellation *ch'u-ai* (= Kāma, the god of Love) applied, as we have seen, by a Chinese commentator of Yuan Chwang to Udayana of Kauśāmbī. It will be observed that, whereas in the Tibetan tradition the epithet 'Kāma' is applied to a prince of Pāṭaliputra, in the Chinese tradition it is applied to Udayana, a Kuru prince primarily associated with Kauśāmbī. The name 'Nemita', in the Tibetan Tradition, connects itself naturally with 'Nemi-chakra', an ancestor of Udayana, who removed his capital from Hastināpura to Kauśāmbī. The Dīpavaṃsa (5, 30, 37), too, relates that 'Nemiya' was followed by his son and grandson in succession, after which came 'Aśoka, the inaugurated prince'. The son of Kāmāsoka, named 'Nandin' by Tārānath, is obviously 'Nandivardhana' of the Purāṇas; the element *vardhana* being optionally dropped as in *Asoka-wardhana* (the name of Aśoka in Viṣṇu Purāṇa) and *Harsha-wardhana*.<sup>1</sup>

Hemchandra, the Jaina writer, speaks of 'Udayin' as the founder of Pāṭaliputra, and adds that 'He became a powerful monarch of whom the other kings stood in great awe' ..... 'Once a king who had incurred his displeasure was dethroned by him and died in the flight'.<sup>2</sup> The Mahāvāṃsa account of the second Buddhist Council held at Vaiśālī also implies the ecclesiastical suzerainty of Kālāsoka of Pūpphapura over Avantī and Kauśāmbī. His political suzerainty is implicit not only in the circumstance that he is the only king approached by priests coming from Kosambī, Pāveyya, and Avantī, but also in the fact that these priests are described as hastening from 'provincial towns' to the capital Pūpphapura where Kālāsoka resided.<sup>3</sup>

That Avantī and Magadha were united under one sceptre on the death of Pālaka follows also from a well-known Jaina reckoning which starts with Pālaka's accession to the throne of Avantī, but jumps to what would be usually regarded as a

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Mahāpadma was crowned in 412 B.C. (*J.P.A.S.B.*, 1925, pp. 231 ff.). Retaining Udayana's reign-period (33 years), we should reduce that of Nandivardhan and Mahānandin to about 55 years in order to arrive at 544 B.C. as the date of Buddha's death corresponding to Ajāt's 8th year. Under the Avantī enumeration, the total (138 years) carries us back to 528 B.C. as the year of Pālaka's accession, conforming to the traditional date of Mahāvīra's death

<sup>1</sup> See the above note.

<sup>2</sup> *Parīśiṣṭaparvan*, VI (Bib. Ind.)

<sup>3</sup> .....tato Pūpphapuram gatā vadimsu Kālāsokassa narindassa a lajjamo :

Mahāvānāvithāramhi vasāma Vajjibhūmyam gahissāma vihāram'ti  
*gāmaṃvāsika bhikkhavo āgacchhanti mahārāja patisedhaya te' iti* (Mahāv.  
IV, 31-33).

distinctively Magadhan landmark—the beginning of the rule of the Nandas. The Jaina Harivaṃśa, in repeating what seems to be the very same reckoning, says that Avanti, after Pālaka's reign, went over to kings of (the race) of Arjuna (*Vijayabhūbhujā* where Vijaya=Arjuna).<sup>1</sup> The reckoning takes no account of any Prādyota king after Pālaka, and thus indicates the amalgamation of Avanti with Magadha, after Pālaka.

The Mṛcchakatikā also declares, as already noticed, that a change of dynasty took place in Avanti after Pālaka who was dethroned in favour of 'Aryaka'. Āryaka however is represented, owing apparently to the exigencies of dramatic art, as a cowherd (*gopālādāraka*), and describes himself in Act VII as *gopāla-prakṛti* which term may perhaps be regarded as containing a veiled reference to Udayana's 'permanent epithet', *Vatsa-rāja* (= 'lord of calves', literally). This idea seems to be supported by the fact that Śarvilaka, who helps 'Āryaka' to escape from the prison into which he had been put by Pālaka, compares himself, in a soliloquy, to Yaugandharāyaṇa, and Āryaka to Udayana.<sup>2</sup>

Possibly, therefore, both Darśaka of Magadha and Pālaka of Avanti were unpopular monarchs, and Udayana had the people on his side when he essayed to become the political head of a great State stretching from the the Bay of Bengal to the Arabian Sea.

It might be said, perhaps, that the evidence of the Purāṇas on this point is untrustworthy, particularly that of the Vishnu Purāṇa which explicitly makes the Prādyota dynasty of Avanti succeed the Bārhadrathas of Magadha, being itself succeeded by the Saisunāga dynasty, thus militating against the synchronism between Darśaka and Pālaka. But I take only the form of the name 'Udayana' from the Vishnu which, though confused in other details, often gives the proper names correctly : e.g., the name Vindusāra, of the Maurya dynasty, has been corrupted in all other Purāṇas, but preserved in the Vishnu.

<sup>1</sup> See Mahābhārata, IV, 44. The Jaina work is modelled on the Hindu Harivaṃśa, itself a supplement to the Mahābhārata. A clan calling itself *Āryunāyana* issued coins c. 100 B.C. and is mentioned by Samudragupta.

<sup>2</sup> Or, was the tradition already distorted by popular etymology of the epithet 'Vatsa-rāja' ? The *Mṛch.* was composed in the Kushān period when coins bearing images of 'Nana' were still known as 'Nānaka' (Wilson, *Ar. Antiqua*, p. 364) but not yet as 'Dināra'. It is later than Bhāsa's *Chārudatta* which has no reference to the story of Āryaka, although complete in four Acts (as shown by the statement of Cheti at the end *pram me, amudaṇkanādaam samruttan*, where *amuda*, Skt. *amṛta*, means 'four'). It is curious to note that, in Mahābhārata, IV, where Arjuna reveals himself to Uttara as bearing the designations *Vijaya*, etc. the occasion is a war for redeeming cows; and his victory was followed by the marriage of his son Abhimanyu with Uttara's sister. The union brought forth Parikshit, ancestor of Udayana.

As regards the charge that 'the Purāṇas' make the Saisunāga dynasty succeed the dynasty of Pradyota, it may be pointed out that the Matsya text, properly interpreted, is not at variance with the known fact that the Prādyota dynasty of Avantī was contemporaneous with the Saisunāga dynasty of Magadha. The Prādyota enumeration in Matsya begins with the statement :

Bārhadratheshvatīteshu Vītihotreshvavantīshu  
Pulikaḥ svāminam hatvā svaputramabhishekshyati.

The prose order is :—

Bārhadratheshu atīteshu Vītihotreshu (cha atīteshu),  
Avantīshu Pulikaḥ svāminam hatvā svaputramabhishe-  
kshyati.

'When the Bārhadrathas will have ceased to exist, as also the Vītihotras, in Avantī, Pulika<sup>1</sup> will kill his master and make his own son king.' This son, as the subsequent verse shows, was Pradyota.<sup>2</sup> Now, the Bārhadrathas were kings of Magadha (*Māgadhā ye Bṛihadrathāḥ*), not kings of Avantī. Sisunāga was also a king of Magadha, since he is stated to have ruled at Girivraja, the then capital of Magadha. It was he who, according to the Matsya, succeeded the Bārhadrathas in Magadha. This is clearly indicated in the statement :

hatvā teshām yaśaḥ kṛitsnam Śīsūnāko bhavishyati—

where *teshām* refers not to the Prādyotas, who ruled in Avantī, but to the Bārhadrathas, who ruled in Magadha.

But, it may be asked, are not 'Nandivardhana' and his father 'Udayana' included in the Saisunāga enumeration? How, then, could this Udayana be a Paurava which Udayana of Kauśāmbi certainly was? The fact is that all the MSS. of the Purāṇas do not enumerate these kings as Saisunāgas. A very old and remarkable Vāyu MS., after mentioning 'Mahānandin', the successor of Nandivardhana, in the Magadha enumeration, sums up in this way :

sankhyayā bhavitārā vai Sisunāgādayo nṛpāḥ,

indicating that all the kings referred to here were not descended from Sisunāga. A Bhāgavata MS., in the library of the Asiatic Society of Bengal, also gives a similar reading :

Sisunāgādayaśchaite. . . .

Similarly, the enumeration, in the Avantī list, of 'Ajaka' and 'Nandivardhana', along with the Prādyota dynasty, does not imply that these two kings belonged to that dynasty. In

<sup>1</sup> The reading in Vā. genly is *Sunika*. We should emend the name to *Punika* or *Punaka* in the light of Bāṇa's *Harshacharitam*, VI.

<sup>2</sup> This interpretation is accepted in the *Cambridge History of India*, Vol. I, p. 311, where reference is given to my booklet *Udayana Vatsarāja* (Calcutta, 1919).

fact, the Matsya does not call them 'Prādyotas' and in giving the total (apparently) of the reign-periods as 52 years, indicates that the Prādyota dynasty came to an end after Pālaka. since Pradyota is uniformly assigned a reign-period of 23 years and his son and successor, Pālaka, is said in the Vāyu to have reigned for 24 years, while the Matsya ascribes to him a reign of 28 years.

A third objection which might be raised is that Udayana of Kauśāmbī is mentioned in the Puranic list of Paurava kings, where he is stated to have been succeeded, not by Nandivardhana, but by Vahinara, and Vahinara is succeeded, not by Mahānandin, but by Daṇḍapāṇi. Are we to suppose, then, that Nandivardhana ruled over Avanti and Magadha, while Vahinara, another son of Udayana, reigned at Kauśāmbī? The supposition is by no means so absurd as it appears at first sight. That such joint rule was an established practice in the fourth century B.C., can be inferred from a passage in the Kauṭīliya Arthaśāstra—

kulasya vā bhavedrājyam kulasaṅgho hi durjayaḥ.

This passage has been wrongly interpreted by Mr. Shamasastri, the learned translator of the Arthaśāstra. It implies joint rule among *rājaputrāḥ* of the same *kula*, since it occurs at the close of the chapter on *rājaputra-rakshanam*. What seems to me to give additional support to this supposition is that a king called 'Viśākhayūpa' is introduced into the Avanti list in many Puranic MSS. His position in the list appears to be doubtful. But, as shown above, we should regard Viśākhayūpa as having come after Nandivardhana. He was thus a contemporary of Mahānandin of Magadha, and may have been his kinsman. It may be noted in passing that the names Nandivardhana, Viśākhayūpa, Mahānandi, and Daṇḍapāṇi connect themselves with the god Śiva who seems to have been the god to whom these princes paid their devotions. The name Viśākhayūpa occurs in the Kalki Purāṇa as belonging to a king who flourished towards the close of the 'Kali' age. Now, the 'Kali' age, according to an old reckoning noted in the Purāṇas, began with the accession of Parikshit and lasted for 1,000 years. Our Viśākhayūpa also flourished, if this reckoning be accepted, towards the close of the 'Kali' age, since Mahānandin, his contemporary, was the father of Mahāpadma whose coronation, according to the Purāṇas, took place 1015 or 1050 years after the birth of Parikshit. I have elsewhere<sup>1</sup> endeavoured to show that Nandivardhana and Mahānandin represent the earlier Nandas (*pūrvananda*) as distinguishable from Mahāpadma's line of later Nandas (*navananda*). It seems that Vahinara, Daṇḍapāṇi, Viśākhayūpa, etc., are to be classed

<sup>1</sup> *J.B.O.R.S.*, 1918, p. 92 ff. Cf. *I.H.Q.*, Vol. VIII, pp. 466-79 where I have further discussed the matter.



with these 'earlier' Nandas. Our supposition thus allows some credit to the ancient tradition that 'the Nandas' ruled conjointly. It is significant to note in this connexion that, according to the Mahāvamsa, Kālāsoka, identifiable with Udayana, had ten sons who conjointly ruled the empire.<sup>1</sup>

A fourth objection may be founded on the circumstance that, according to a story current in the 7th century A.D. Udayana caused a sandalwood statue of Buddha to be made already when Buddha was alive. This is manifestly an invention, because archæology teaches us, *firstly*, that Indian sculptors, down at least to the 2nd century B.C., were content to represent Buddha by symbols like the footprint or the wheel; and *secondly*, that the earliest statues of Buddha are not only of Hellenistic craftsmanship and found most copiously in Gandhāra, but have in many cases the head of a Greek god—a device that would have been entirely unnecessary if there were already an indigenous model to go upon.<sup>2</sup> It may be mentioned that the Jains have a similar story crediting Udayana with the erection of a statue of Mahāvīra. Here, too, archæology discredits the account. The earliest images of Mahāvīra appear unmistakably modelled on their Buddhist prototypes; and since the first statues of Buddha must have been constructed centuries after his time, it becomes impossible to believe that any image of Buddha or Mahāvīra could have been set up by Udayana. Indeed, the occurrence of the story in traditions of two rival sects, Buddhist and Jain, points to the conclusion that sectarian eagerness to claim a devotee in Udayana lies at the bottom of the tale.

Pious imagination was in like manner responsible for the view that Udayana was born on the same day as Buddha. There is nowhere in Pāli canonical literature any indication that Udayana was a contemporary of Buddha; the reference to Bodhi as a son of Udayana in the foreword to a Jātaka story (3. 157) written several centuries after Buddha, being a mistake, since Bodhi was a prince of the Bhagga country. Nor does the reference to Udayibhadda as a son (*kumāra*) of Ajātaśattu in Dīgha Nikāya (Samannaphala sutta) prove that Ajāt. was

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<sup>1</sup> Mahāv. V. Kālāsoka had a sister called *Nandī* (*ibid.*, IV) who was of a 'pious disposition'.

<sup>2</sup> The 'wheel' occurs on coins of Menander, famed as *Milinda* or *Milundra* in Buddhist literature; no image of Buddha had as yet come into being. Upon coins of Kanishka, the image (explicitly designated *Boddo*) appears already stereotyped in form: so that the first images must have been made later than Menander and considerably earlier than Kanishka. The innovation may perhaps be ascribed to Maues who continued the Hellenistic traditions of the Indo-Greeks in his mintage and in whose reign was inscribed the Taxila Copperplate recording deposit of Buddha's relics by an official. Maues perhaps figures Buddha on his coin-type 'Elephant: seated figure' (Whitehead, *P.M.C.*, Pl. x, 31; cf. *ibid.*, Pl. xvii, 29, for a coin of Kozola Kadaphas with an undoubted Buddha figure).

succeeded by Udayibhadda as represented in the Mahāvamsa. Finally, the omission of Anuruddha and Munḍa from the Puranic list of Magadha kings cannot be held to impugn the accuracy of Puranic tradition, as *Anuruddha* and *Munḍa* may well have been epithets of two of the several successors to Udayana.<sup>1</sup>

It seems, therefore, to be very reasonable to conclude that the Brhatkathā account of the *dig-vijaya* of Udayana Vatsa-rāja is not pure imagination, but that it is based on genuine tradition. Udayana Vatsa-rāja thus emerges before us as the first Emperor of India since the great Civil War, under whom were first united the three kingdoms of Magadha, Vatsa, and Avanti. To him belongs the credit of having made Pātaliputra the Imperial city. His military achievements were probably helped by popular movements in his favour, and he is still cherished in popular memory as an ideal king, full of romance, and full of majesty.

### III. Consolidation under Mahāpadma.

It is interesting to observe how the Greeks to the West, like the Indians to the East, of the Persian Empire, joined hands in a confederacy against Persia. Achæmenian ambition to shatter the surge of Hellenic nationalism received an effective check from a combination of Hellenic States; first, inchoately, under the hegemony of Sparta (480-79 B.C.); then, organically, under the leadership of Athens (478 B.C.) Preliminary to the combination (510 B.C.), Athens had expelled Hippias, the pro-Persian tyrant, her example having been followed, further West, in Rome.

In India, about 500 B.C., Darśaka of Magadha was deposed, and Pālaka of Avanti killed, in a popular rising; and both Magadha and Avanti submitted to Udayana of Vatsa. After Udayana's death, his empire became a federation amongst his sons, and the federation lasted till 412 B.C., when Mahāpadma crowned himself as the 'sole monarch' of an empire evidently including Magadha, Vatsa, Avanti, and other kingdoms, after 'uprooting all kings'. Henceforward, we find no vassal-king and no confederacy. Mahāpadma's motive for this procedure

<sup>1</sup> The Sinhalese list of Magadha kings seems to be derived mainly from the Pāli canonical literature which is said (Mahāv. Ch. XXXIII) to have been first reduced to writing in the reign of Vatta Gamani (1st century B.C.). It is not likely that any record of an earlier period existed in Ceylon regarding the names or order of succession of Magadhan monarchs which had to be built up, for purposes of a reconstructed chronology, out of the incidental references in the canonical literature, mainly. Cf. the Divyāvadāna list (ed. Cowell, p. 369) and p. 343, n. 1 *supra*. *Anuruddha* may stand for *Anuruddha*, a name of Śiva, which would immediately be related to *Nandivardhana*, etc. of like import (p. 347 *supra*). *Munḍa* seems to be a nickname (= 'Bald') applied to a king of Pātaliputra otherwise unknown.

is stated in the Purāṇas : he was 'prompted by prospective wealth'. Ceylon tradition calls his son *Dhana-nanda* owing to his reputed greed for wealth.<sup>1</sup> We are at once reminded of Darius I whose imperial organization made him 'sole monarch', with subordinate governors known as 'satraps' over different provinces, each bound to pay annual tributes, not in kind as formerly, but in gold and silver. For this reason, Herodotus (III. 89) tells us, and because he 'made profit of everything', Darius was regarded as a 'trader' by the Persians. But the system thus introduced by him was perpetuated by his successors. And Mahāpadma seems to have profited by the Persian example.<sup>2</sup>

In yet another particular, contemporary Persia served as Mahāpadma's model. Darius II, nicknamed Nothus, was an illegitimate son of Artaxerxes I, and came to the Persian throne in 424 B.C., after killing his legitimate half-brother. Mahāpadma, too, was the son of Mahānandin by a Śūdra mother, and came to the Indian throne in 412 B.C., apparently to the exclusion of legitimate claimants.<sup>3</sup> The Bh., and Vṣ., Purāṇas describe him further as having been *a-dhārmika*, not conforming to *dharma* and *anullaṅghita-śāsana*; one whose *śāsana* was never transgressed'... In other words, he made his *śāsana* or royal order superior to the *dharma* or law of the land. This was a new departure in the constitutional history of India to which the Puranic compilers could only find a legendary parallel in Bhārgava (Paraśu-Rāma).<sup>4</sup> We can hardly help connecting this innovation with the Persian maxim that the King's word was Law. In the Kautīliya A.-S. (III. 1), the principle is clearly enunciated :—

dharmaścha vyavahāraścha charitraṁ rājaśāsanaṁ  
vivādārthaśchatuṣpādaḥ paśchimaḥ pūrvabādhakaḥ  
tatra satye sthito dharmo vyavahāraṣtu sākshishu  
charitraṁ saṅgrāhe pūṁsāṁ rājñāmājñā tu śāsanaṁ.

Here, clearly, *śāsana*, defined as 'royal order', is placed highest, and *dharma*, said to be 'founded on truth', comes last, in the estimation of judges in a court of Law. The Kautīliya continues :—

<sup>1</sup> In one of Pargiter's MSS., the sons of Mahāpadma are called *Sahalyādi*, 'Sahali and others'; we have *Sahalin* also in *Divyāvadāna* (ed. Cowell, p. 369) where a list of Magadhan monarchs is given, somewhat like the list in the Sinhalese chronicles, but radically divergent from the Purāṇas.

<sup>2</sup> Ctesias, who resided in the Persian Court c. 400 B.C., gives details of friendly relations between the Persian monarch and the 'King of the Indians'.

<sup>3</sup> Deb in *J.P.A.S.B.*, 1925, pp. 211 ff.

<sup>4</sup> It is tempting to connect the name Paraśu-Rāma with Persia. Persians are known to Pāṇini and Vedic literature as *Parśu*, possibly related to *parasu*, a Babyl.-Assyr. root denoting 'to slay'.

rājñāḥ svadharmāḥ svargāya prajā dharmena rakshituh  
 arakshiturvā kshepturvā mithyādaṇḍamato' nyathā  
 daṇḍohi kevalo lokam param ch'emaṁ cha rakshati  
 rājñā putre cha śātrancha yathādoṣham samamdhritāḥ.

A king who does, as he should, protect his subjects in accordance with *dharma*, attains heaven; if he does not, or if he inflicts unjust punishments on them, he goes to hell. It is only when the king punishes each strictly according to his guilt, equally if the guilty person be his own son and if he happens to be an enemy, that punishment can afford protection to the king in this world and in the next. This is obviously a mere commendation which, if followed, would avoid conflict between *sāsana* and *dharma*.

Contrast this with the attitude of *Dharmaśāstras* such as the *Mānava* where the king is enjoined to administer law as laid down in the *dharmasāstra*. The later code of Yājñavalkya characteristically remarks:—‘*Dharmaśāstra* is superior to *arthaśāstra*—this is well-established’. In the *Kautiliya*, on the other hand, *dharmasāstra* is regarded as subordinate to *arthaśāstra*; accordingly, it has a section named *dharmasthīya* setting forth a code of Law, founded no doubt on older *dharmasāstras*, but subjected to the *arthaśāstra* doctrine that the king’s word overrides the Code. In a later abridgment of the *Kautiliya*, the *Kāmandakiya Nītisāra*, there is, significantly, no section corresponding to the *dharmasthīya*: *dharmasāstra* has evidently now regained its former status and is no longer dependent on *arthaśāstra*.

The subordination of *dharmasāstra* to *arthaśāstra* was thus an episode in the history of Hindu law. It did not however commence with the *Kautiliya*. In the *dharmasthīya* section of that treatise, as in many other sections pertaining to *arthaśāstra* proper, pre-*Kautiliya* authorities are cited and discussed, and *Kautilya*’s own opinions, when they differ from the authorities, are duly set forth. Had *dharmasāstra* been newly brought under *arthaśāstra* by K., we might expect a discussion on the innovation. Indeed, we find K., citing (I. 7 and 8. 3) the *Pārāśaras*, an older school, for the view that ‘*dharma* and *kāma* are rooted in *artha*’. When precisely the view was first propounded we do not know. But we may be sure that the view found favour with the *Nandas* overthrown by K. This follows from a consideration of one of the closing verses of his A-Ś. :—

yena śāstram cha śāstram cha Nandarājagatā cha bhū  
 amarshen’ oddhrtān’yāsu tena śāstram idam kṛtam.

The plural in *uddhrtāni* shows that all the three—*śāstra*, *śāstra*, and *bhū*—are claimed to have been ‘rescued’ by *Kautilya*, prompted by *amarsha*. ‘Rescued’ from what or from whom? In the case of *bhū*, there is the explicit statement that the *bhū* or ‘Soil’ had been in possession of ‘the *Nanda* Kings’. The absence of any other explicit statement in the

cases of *śāstra* and *śastra* shows that these two also were rescued from the hands of the Nandas. In the case of *śāstra*, indeed, no other supposition is tenable; for *śāstra* means 'arms', i.e., 'army'. How then are we to understand the assertion, that *śāstra* was rescued by K. from the possession of the Nandas. *śāstra* literally means 'a body of laws'; or, more succinctly, 'Law'. The occurrence of *śāstra* along with *śastra* confirms this interpretation. So, the Nanda kings had made themselves masters of *śāstra*, *śastra*, and *bhū*—the Law, the Army, the Soil. And K., goaded by a sense of wrong, rescued these from them.

Here is another indication of Achæmenian influence on the Nandas; they were, like their contemporary monarchs in Persia, not only masters of the *Law*, but also masters of the *Soil*. The point whether ancient Indian kings regarded themselves as masters of the Soil has been much debated. Let us look at the facts. Megasthenes attests Mauryan claims to ownership of Soil. Indian literature of the 'Vedic' period (c. 1200–600 B.C.) shows no trace of such a claim. It was therefore formulated in the period between, say, 600 B.C., and 300 B.C., The A-Ś. evidence discussed above throws the lower limit back to c. 400 B.C. It is difficult not to concede that the idea came from Persia. The Persian king regarded himself not only as the owner of the Soil, but also as the owner of the Waters within his realm; that is why Darius demanded from Amyntas *earth* and *water* as tokens of submission. Thus, the commentator to the A-Ś., shows himself versed in traditional lore when he says:—

rājā bhūme'rpati'rdr̥ṣṭaḥ śāstrajñair udakasya cha  
tābhyāmanyat tu yaddravyam tatra svāmyaṁ kuṭumbi-  
nām.

'Those who know the *śāstra* are aware that the king is owner of both the *earth* and the *water*. Except over these two, cultivators (*kuṭumbīṇaḥ*) have ownership over everything else'. Kātyāyana also says:

bhūsvāmī tu smṛto rājā nānyadravyasya sarvadā  
tatphalasya hi śaḍbhāgam prāpnuyāt nānyathaiva tu

'The king is always remembered to be master of the Soil; he is not master of any other thing (grown on the Soil). That is why he is entitled to a sixth part of produce of the soil. Otherwise (i.e., if he were not owner of the Soil), this (sixth part) would not have been his'.

#### IV. *Bureaucracy.*

The elaborate bureaucratic machinery of government outlined in the Kauṭīliya Arthaśāstra owes something to the administrative system obtaining in the Achæmenian Empire as

organized under Darius and his successors. After his conquest of Sind, Darius divided his empire into provinces which he placed under 'satraps' (*kshathrapāvan*, lit 'protector of the realm'). The allied term *kshatrapa* is known to have been introduced into India by Iranian invaders in the second century B.C. The Kshaharātas, of whom the best-known is Nahapāna,<sup>1</sup> were probably the first to use this title. Its use, however, was apparently confined to non-indigenous rulers—a circumstance indicating that it was all along regarded as essentially foreign. In Persia, the term was not merely applied to the provincial heads but also to officials under them who had jurisdiction over smaller districts. The obvious inference is that the imperial organization was looked upon as a group of homogeneous units, the administration tapering down from the Great King to district-heads not improperly designated 'satraps' or protectors of the realm. In the Kauṭīliya Arthaśāstra, we find that provincial governors known as *samāhartās* had charge of the *janapadas* or provinces which were parcelled out among smaller rulers termed *gopas* and *sthānikas*; while the towns containing fortifications were placed under the charge of Mayors or *nāgarakas* who discharged parallel functions and employed *gopas* and *sthānikas*, like the *samāhartā*. In this way, homogeneity in administration was sought to be maintained. The smaller satraps of Persia thus correspond to the *gopas* of Kauṭīliya: and it is certainly tempting to explain *gopa* as 'protector of the realm' (*go-pa=gām prthivīm pāti rakshati*)—an explanation authorised by Kshīrasvāmin in his gloss to Amarakosha.

One of the principal functions of the Persian satrap was to collect the taxes, partly in kind, partly in coin. The *samāhartā* was likewise entrusted, in the Indian scheme, with the task of collecting revenue; and Kauṭīliya is careful to stress the capital importance of finance (*kośapūrvās sarvārambhāḥ, tasmāt pūrvam kośam aveksheta*—Arthaśāstra, II, 8). An Officer known as the *sannidhātā*, who received a salary equal to that of the *samāhartā*, was placed in charge of several 'houses' such as Treasury (*kośagṛha*), Merchandise (*panyagṛha*), Forest-produce (*kupyagṛha*), Armoury (*āyudhāgāra*), and Victuals (*koshthāgāra*). These departments were maintained at the expense of the *samāhartā*; Kauṭīliya includes them under 'the body of expenses' (*vyaya-sarīram*) incurred by the *samāhartā* (Arthaśāstra, II, 6). K. adds, by way of advice, that the wise *samāhartā* should see to the increase in income and decrease in expenditure; so that we may take the *samāhartā* to have been invested with the power of increasing the income and diminishing the expenditure in his province. The *sannidhātā*, on the other hand, had no

<sup>1</sup> Nahapāna was supplanted by Gautamiputra Śātakarṇi who founded the Vikrama era of 58 B.C.; see Deb, *Zeit f. I. u. Ir.*, 1922, pp. 250 ff.

such power ; what he received and what he spent were to be duly noted, and the balance shown. He should, adds K., acquaint himself with the record of incomes for the last century—a piece of advice showing that the institution of *samāhartā* and *sannidhātā* was at least a century old when the A-Ś. was written.

These conclusions are corroborated by a passage in the Kautiliya (VIII, 4) which cites the opinion of K. against his predecessors in politics (*āchāryāḥ*) concerning oppressions and obstructions likely to be caused by these two officers ; the earlier opinion was that the *sannidhātā* can oppress by corruption and abuse of power, while the *samāhartā* being set over a Secretariat (*karaṇādhishthita*) enjoys a known profit (*pradishṭaphalopabhogī*). K. says that the *sannidhātā* receives into the treasury what is receivable and fixed as such by others, while the *samāhartā* first secures money for himself and then makes or unmakes money for the King,—or deals with what wealth he receives from others as if he believes it to be his own.

The Persian satrap was held in check by a Secretary or Controller of the Revenue attached to each satrap denominated *grammatistes* by Herodotus. What his duties exactly were is obscure, the designation being derivable from Gk. γραμμα which may mean 'state-papers' or 'accounts'. It is clear, however, that he was an important official charged with the task of keeping watch over the satrap in addition to his duties connected with *gramma*. This aspect of Achæmenian administration deserves particular study in connexion with the espionage system prevailing in the Kautilyan scheme. Darius depended, and had to depend, on an efficient Secret Service for the preservation of the *pax Persica*. The spies were known as the 'Eyes and Ears' of the King : through them the king could, as it were, *see* and *hear* what was going on within his empire.

In the Kautiliya we find an office called the *akshapaṭala* where-in were deposited the state-papers, the accounts, and records of the Intelligence Department. It was from this office that the *adhyakshāḥ* or Overseers of the different departments were appointed by the king. We are at once led to think of an explanation of the term *aksha-paṭala*. It must be connected with *adhi-aksha*, literally, 'over-seer'. *Aksha-paṭala* would thus signify 'group of eyes'. In later literature, *akshapaṭalika* denoted 'judge', evidently because the king had been performing a double duty, that of the Supreme Judge and also that of presiding over the *aksha-paṭala*. The idea that spies are the king's eyes appears in the epithet *cāracakshus* applied to kings often enough in literature posterior to the Kautiliya. Regarding the 'ears', one is tempted to make a suggestion. The accounts filed in the *akshapaṭala* office are directed to be *heard*, a process analogous to the older method of *audit*. Information communicated through espionage by mahāmātras was also *heard*

sometimes. The spies thus constituted the 'Eyes' and the 'Ears' of the king.

In the Indian system, as in the Persian, strict discipline was enforced, and no corruption was tolerated. The Kautiliya specifically lays down the maxim of 'no mercy' for officers proved guilty of embezzlement.

In Persia, the satrap not only collected the revenue: he supervised agriculture, looked to the security of the roads, put down robbery and brigandage, controlled subordinate districts and the subject tribes and cities.

In India, the *samāhartā* not only collected the revenue; he also supervised agriculture, looked to the roads, controlled subordinate districts and cities, and, with the help of spies, discovered and put down crimes.

About half a century after Darius, we find the satrap administering justice—a function normally discharged by the king himself as the Supreme Judge and 'law-bearers' (*datavara*) appointed by the king.

The law-courts in India of the Kautiliya were presided over by judges called *dharmasthāh* appointed by the king. In the earlier period, they exercised both civil and criminal jurisdiction. Later, two separate courts were constituted—the *dharmasthāya* and the *kaṇṭakaśodhana*, the one presided over by *dharmasthāh*, the other presided over by *pradeshtārah*, both under the *samāhartā*.

Under the early Achæmenians, the military was outside the satrap's jurisdiction; not only the Generalissimo designated *karanos* (O.P. *Kara*, 'army') but also all commanders of fortresses throughout the empire were royal officers obeying only the royal mandates. Later, the satraps came to control the Army, and this led to a serious weakening of the central Government, until at last Alexander overthrew the Achæmenians and adopted the satrapal system for his new empire which, in its turn, soon broke up into kingdoms under his generals, Seleucus and others.

In the Indian scheme, the Army was under the charge of the *senāpati* or Generalissime who, according to a scale of salaries set forth in the Kautiliya, received the highest pay possible to an officer of State. The different units of the army—infantry, cavalry, chariotry, elephantry—were under the administrative jurisdiction of their respective 'overseers' or superintendents who were all royal officers.

Maurayan imperialism is thus seen to be the result of India's reaction to the Persian stimulus operating since the days of Cyrus and Darius the Great. An empire begot an empire.





**I. A. R. I. 75.**

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